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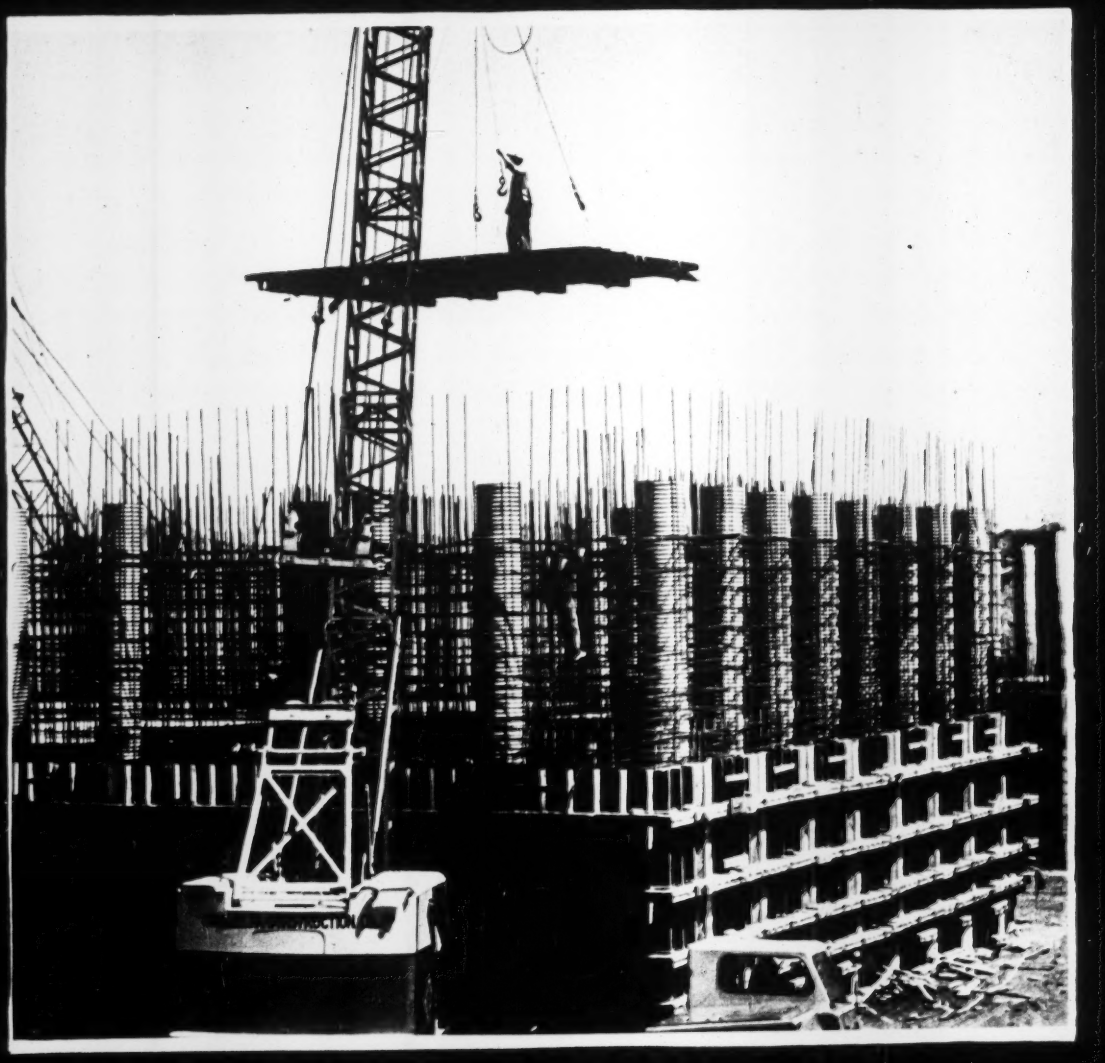

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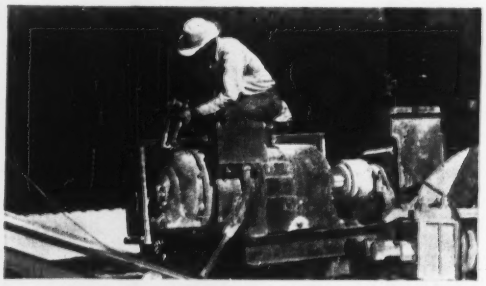

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Memorial Unit of Grace-New Haven Community Hospital, New Haven, Conn.; *Architect:* Douglas Orr; *Contractor:* The Dwight Building Co.; *Structural Engineer:* Henry A. Pfisterer; *Mechanical Engineers:* Hubbard, Lawless & Blakeley; steel fabrication and erection by Bethlehem.

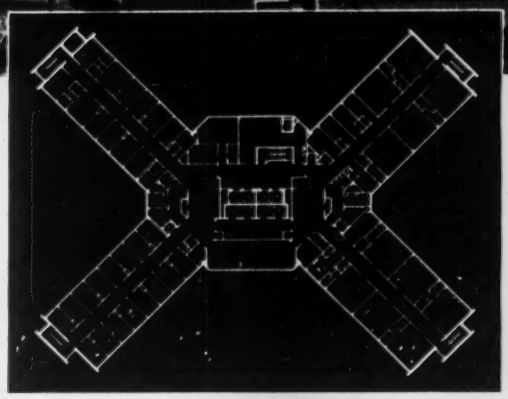
NEW UNIT FOR HOSPITAL IN NEW HAVEN

At York St. and South St., in New Haven, Conn., stands this impressive gray-brick structure, the Memorial Unit of the Grace-New Haven Community Hospital. The recently completed hospital building is a neighbor of the famous Yale School of Medicine. It is the largest structure erected in New Haven since 1930.

The Memorial Unit, 9 stories in height and with four wings, can accommodate 337 patients. Provision has been made for the construction of three additional stories. The building is shaped like a modified "X" to provide maximum light and air. On the upper floors each half of the "X" forms a V-shaped patient division. A nursing station is located at the apex of each "V," making visible each patient doorway.

The partially air-conditioned structure has a 12-story central core containing a bank of six elevators. All other utilities are located in this core, to minimize the passage of noise to the wings. An entire floor is set aside for mechanical services.

Bethlehem fabricated and also erected the 2200 tons of steel which were used to make up the framework for this important addition to New Haven's growing hospital system.



Floor plan, showing arrangement of wings.

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Robert F. Boger
Publisher

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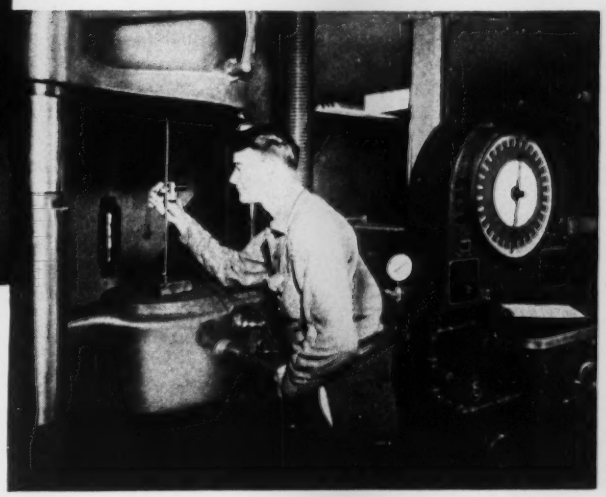
. . . a good pipeline

is the sum of good parts . . .

▲ *Testing the compressive strength of a concrete cylinder*



Testing the tensile strength of steel reinforcing wire ▶

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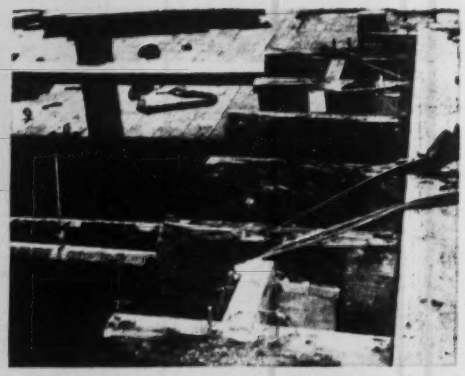
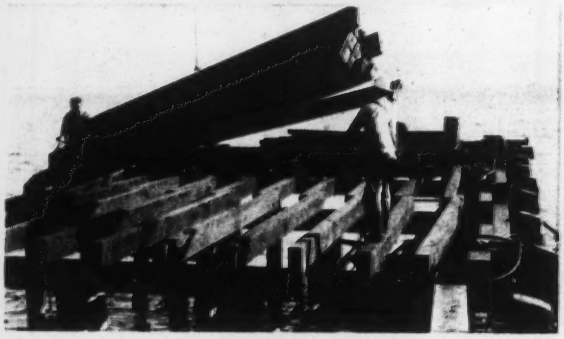


BEFORE—Stringers and wales of this finger pier at the U. S. Navy Electronics Lab in San Diego were badly rotted before repair.

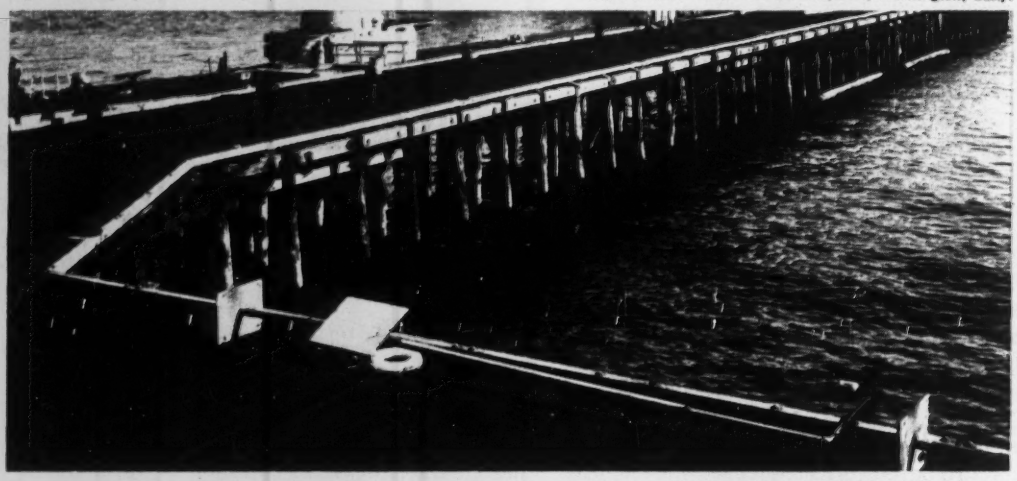
AFTER—Rotted material is replaced with wood pressure-treated to a 6# retention of Monsanto Penta-in-oil. This clean preservative extends the normal service life of the exposed wood up to 5 times.



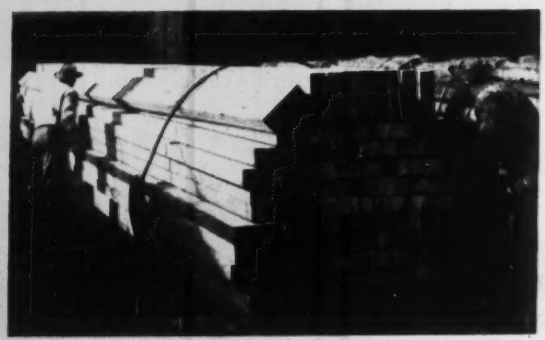
Extending Life of Navy Pier Stringers and Decking...with Monsanto PENTA

Official Photographs, U. S. Navy

Wood Treater: Warren Southwest, Inc., Wilmington, Calif.



New penta-treated 4 x 12 decking is paintable, will not bleed. A total of 130,000 board feet of decking was pressure-treated before construction.



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Equipment of The Campanella and Cardi Co. at work near Barnstable, Mass.

Off-the-road tires haul 35 tons over soft roads, up 15% grades

THE Mid-Cape Highway, pictured under construction, runs from the lower end of Cape Cod to Provincetown, Mass. To build a 4½-mile stretch, 928,000 cubic yards of earth, at 2,900 pounds per cubic yard, had to be moved 4,665 feet from shovel to fill area.

The truck above weighs 15 tons. That's 35 tons, with payload, for those tires to carry over rough construction roads, up steep 15% grades. The tires can take this rugged work 9 hours a day, 6 days a week, because they are B. F. Goodrich Universals. Husky, wedge-shaped cleats resist rock cuts and bruises, give positive traction in either direction.

B. F. Goodrich Universals are built with the exclusive nylon shock shield. Layers of strong, elastic nylon cords under the tread stretch together under impact to protect the tire from shocks and bruises. Result: B. F. Goodrich tires give more mileage, more recappable tires and more miles per recap, increased bruise resistance and less danger of tread separation.

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READER COMMENT

More data on truss failure

SIR: In your article on the collapse of prestressed concrete Vierendeel trusses (ENR May 28, p.25), the following statements are to be corrected:

1. Originally, the trusses were designed for partial prestressing, a method first proposed, tested and patented by F. Emperger and later applied successfully by other outstanding engineers. This method calls for ordinary reinforcement supplemented with prestressing wires, which have a double function to increase the section of typical reinforcement and to reduce high tension in concrete, and consequently, the dead load. In your article, the statement is made that the bottom chord was reinforced with ten, and the upper chord with four, ¼-in. dia wires, and that "some" bar reinforcing also was included. However, this "some" bar reinforcing is the main reinforcement—up to eight ¾-in. dia bars in both lower and upper chords. The prestressing wires represent only a very small percentage of the total steel area—as low as 12⅛% in the lower and 5½% in the upper chord.

2. In your article, the statement is made that some difficulty had been encountered with the trusses before the collapse. This difficulty was indeed very serious. The 19-ton trusses were lifted with two small cranes, one at each end. At the beginning of lifting, one crane overturned under the excessive load, and the truss fell on top of other trusses. Evidently, the dropped truss was destroyed and precast members prepared on the floor for erection were damaged. Since the time of completion was very important, it was decided to strengthen the trusses with 20 additional ¼-in. dia high-strength wires and diagonals at the center. These additional 20 wires were partly post-tensioned and anchored in steel plates.

3. The article also mentions that the trusses had vertical members across the span but not at the midpoint. However, this is one of the typical schemes of Vierendeel trusses, as used, for example, in the railroad bridge at Malines, with 290-ft span; in Stockroye, with the same span; in Val-Benoit, with 280-ft span—all in Belgium—and many other (see TRAVAUX, Sept, 1937).

4. All purlins were precast and prestressed in a way similar to that used in case of the trusses, and were accepted after testing with sufficient safety factor for the rebuilt structure.

5. The subcontractors for prestressing and precasting did not follow certain recommendations and specifications; as for example, cleaning high-tensile prestressed wires in order to obtain a better bond, correct placement of additional reinforcement, curing and strength of concrete, etc.

Pacific Bridge Co., of San Francisco, Calif., was in charge of prestressing and of all installations to attain all required properties of prestressed high-tensile wires, especially reliable bond. In the design, I used Professor Baes' method of structural analysis, and corroborated its results with experimental stress analysis of a photoelastic Bakelite model. The analysis was checked by the writer's method published in the Transactions of Am. Soc. Civ. Eng. Vol. 107 (1942), pp. 1229-1236, and Vol. 115 (1950), pp. 631-634. I prepared also a complete investigation of this case for publication emphasizing various possible causes, but at present, I am not permitted to release the results.

J. J. POLIVKA,
Consulting Engineer
Berkeley, Calif.

Prestressing in England

SIR: I do not know whether the cost of $7.92 per sq ft for the King County Road Bridge (ENR May 14, p. 58) is considerably less than the cost of comparable prestressed concrete bridges as is suggested, but experience with comparisons of this type in western Europe would certainly suggest that there may be something unusual to bring this about.

Evidently you think there is something to consider about this, as you mention the $7.92 three times on the one page!

Could it be that the 150-lb WF beams were free? Or is the contractor now looking through his costs to see by how much they exceeded his bid?

Since prestressed concrete is comparatively new in the U. S., maybe bids for it are often more cautious than they need be, or allow for the cost of obtaining the necessary specialized experience and so do not truly indicate the economy possible.

What has rather impressed me in England recently is the number of cases where a competent contractor, but quite inexperienced with prestressed concrete work, has no difficulty whatever in doing a first-class job. It is now taken for granted in England that the majority of new road

(*Continued on page 10*)

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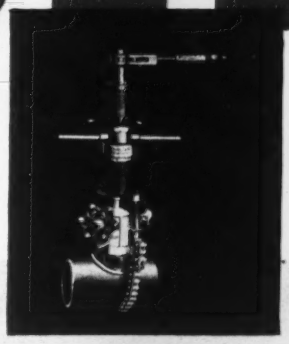

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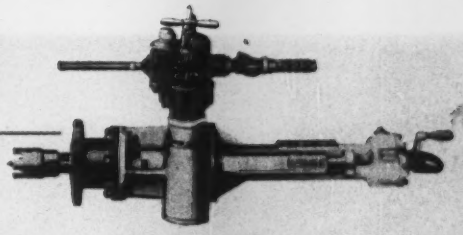

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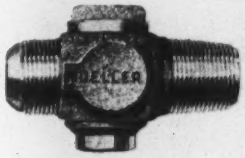

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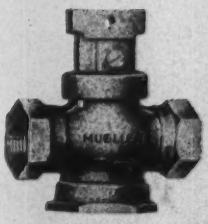

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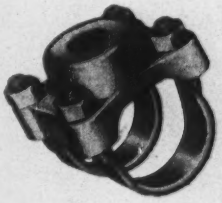

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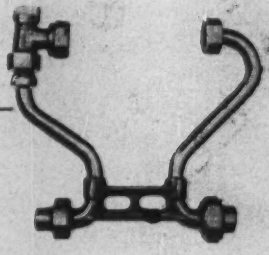

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bridges will be of prestressed concrete; the same applies in Western Germany and France. Use of prestressed concrete for railway bridges however is only now going forward, but 160 ft is the largest span so far in England, with another similar span now, I understand, being built in Germany.

DONOVAN H. LEE
Consulting Engineer
London, England

To overcome deficiency

SIR: With reference to the proposed American Academy of Sanitary Engineers, I agree with Col. Meyer (ENR May 21, p. 10) that the tendency of the ASCE has been to neglect many phases of sanitary engineering. Possibly one reason is because most civil engineering students are required to take one or two courses in sanitary engineering, generally dealing only with water supply and sewerage.

This problem was recognized by the Sanitary Engineering Education Conference held last June at Dartmouth College, preceding the ASEE meeting (ENR July 24, 1952, p. 40). A portion of one committee report, approved by the conference, dealt with the problem of the content of the course or courses to be required of all civil engineering students, and is as follows:

"The objectives of Sanitary Engineering in the Civil Engineering Curriculum are:

(1) **to acquaint** the student with the scope of environmental health activities.

(2) **to inform** the student of the elements of water and sewage treatment.

(3) **to instruct** the student in application of theory to the design and construction of water supply and sewerage systems."

It will be noted that item 1 is intended to overcome the deficiency noted above, although it was recognized that civil engineering students should receive major instruction in item 3.

GILBERT H. DUNSTAN
Professor of Sanitary Engineering
State College of Washington
Pullman, Wash.

Formula claimed unfair

SIR: The "Novel cost basis for water pipeline" (ENR May 21, p. 104) used by the City of Vallejo, California, is not a new departure in the design of pipelines nor in the soliciting of bids for their construction. All

(*Continued on page 14*)

Owners' pride . . . Operators' delight
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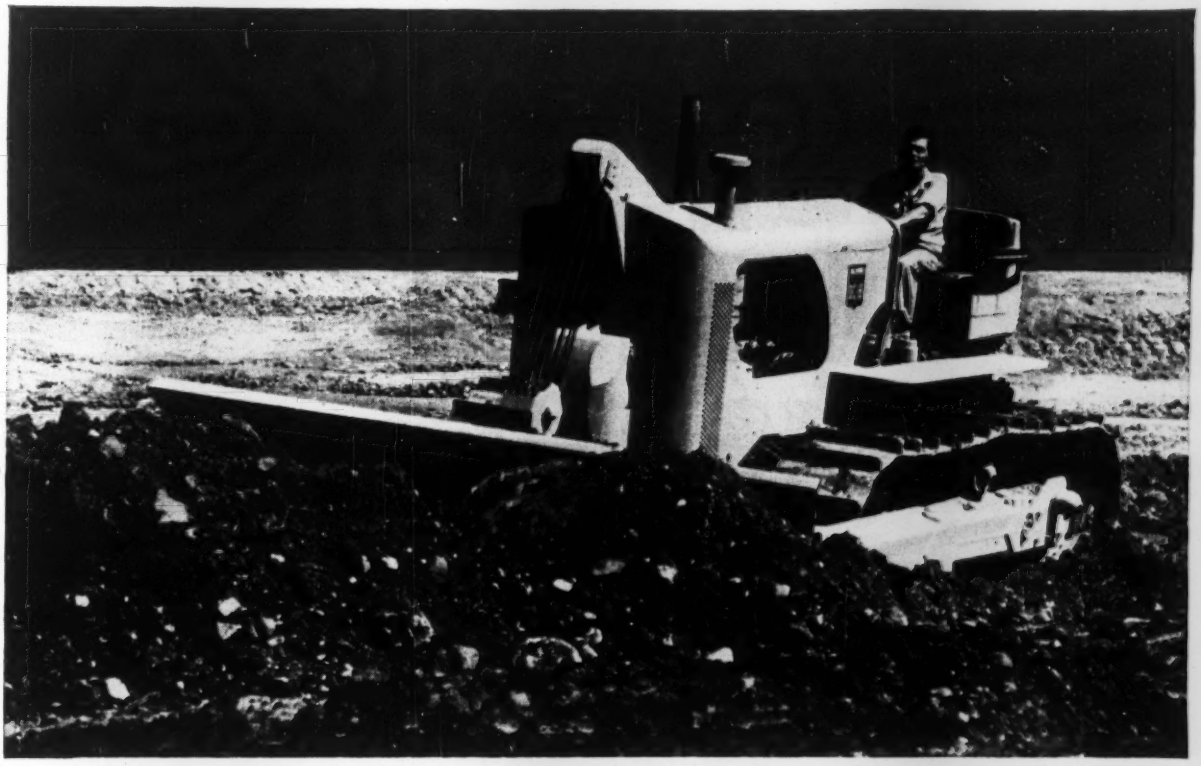

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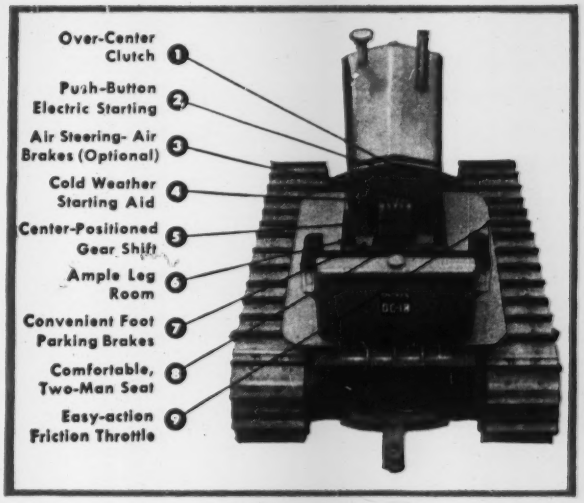
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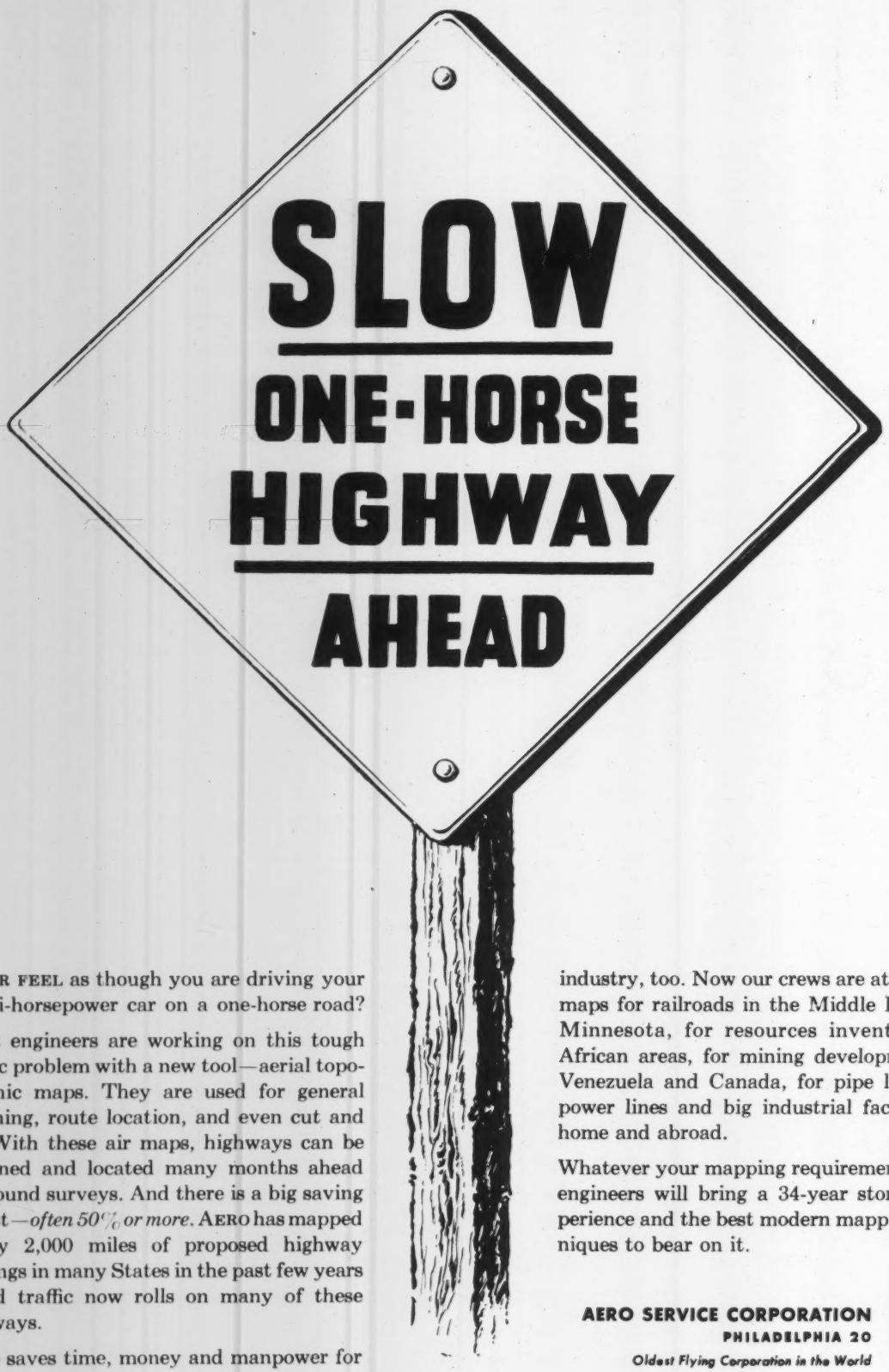

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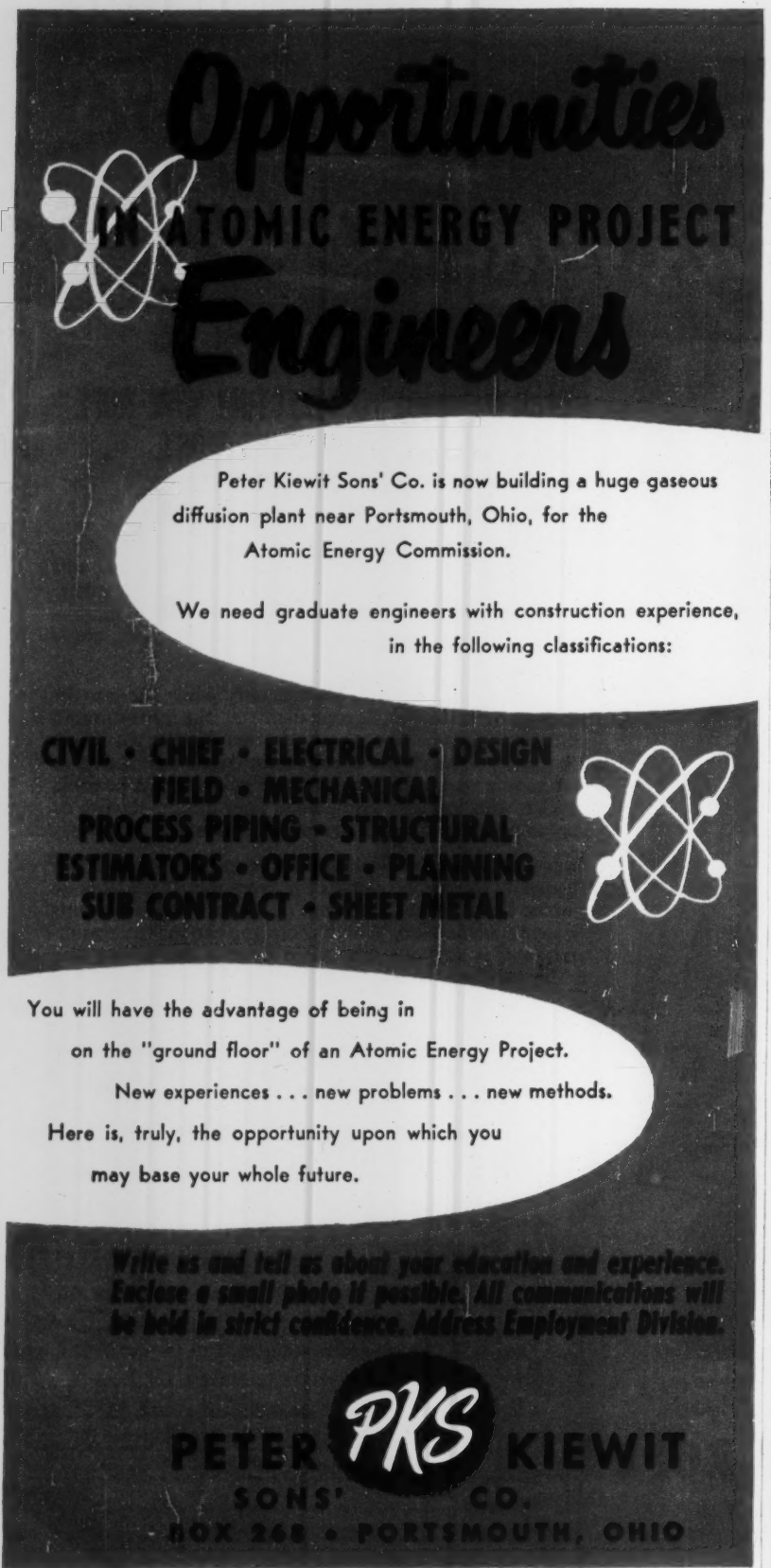
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READER COMMENT

properly engineered waterworks installations take into account first costs, life expectancy, performance, cost of capital, etc. The "novel" part of the Vallejo project is in the use of the formula, which gives preference to one alternate type of pipe over another. The life expectancy assigned to the three pipe alternates is arbitrary, and there is not sufficient evidence from either an engineering or historical point of view to justify the premises of the formula.

It is significant to note that no bids were received on steel pipe for this project nor for a similar project installed by the City of Vallejo a few years ago. The reason for this is that steel pipe manufacturers were required to supply a pipe for 300 psi. working pressure, whereas alternate types of pipe were specified on a design basis of 150 psi. Even before applying the forty-year penalty, this requirement resulted in an added cost to the steel pipe manufacturers of over $2.10 per foot for steel alone.

The formula used purports to place competitive bids on an equitable basis, but this purpose was defeated both by the specifications and the arbitrary life expectance assigned to the pipe alternates.

We have pointed out to the City Council of the City of Vallejo and to Kaiser Engineers, Oakland, Calif., that the "novel cost basis" used for the Trans-Vallejo Pipeline actually deprived the taxpayers of Vallejo of the savings ordinarily realized through competitive bidding.

J. A. Ellis
Asst. Sales Manager
Southern Pipe & Casing Co.

CALENDAR

Summer program in Advanced Strength of Materials, M.I.T., Cambridge, Mass., July 6-17.

City and regional planning programs, M.I.T., Cambridge, Mass., Aug. 21-Sept. 4.

Noise reduction program, Acoustics Laboratory, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 24-Sept. 4.

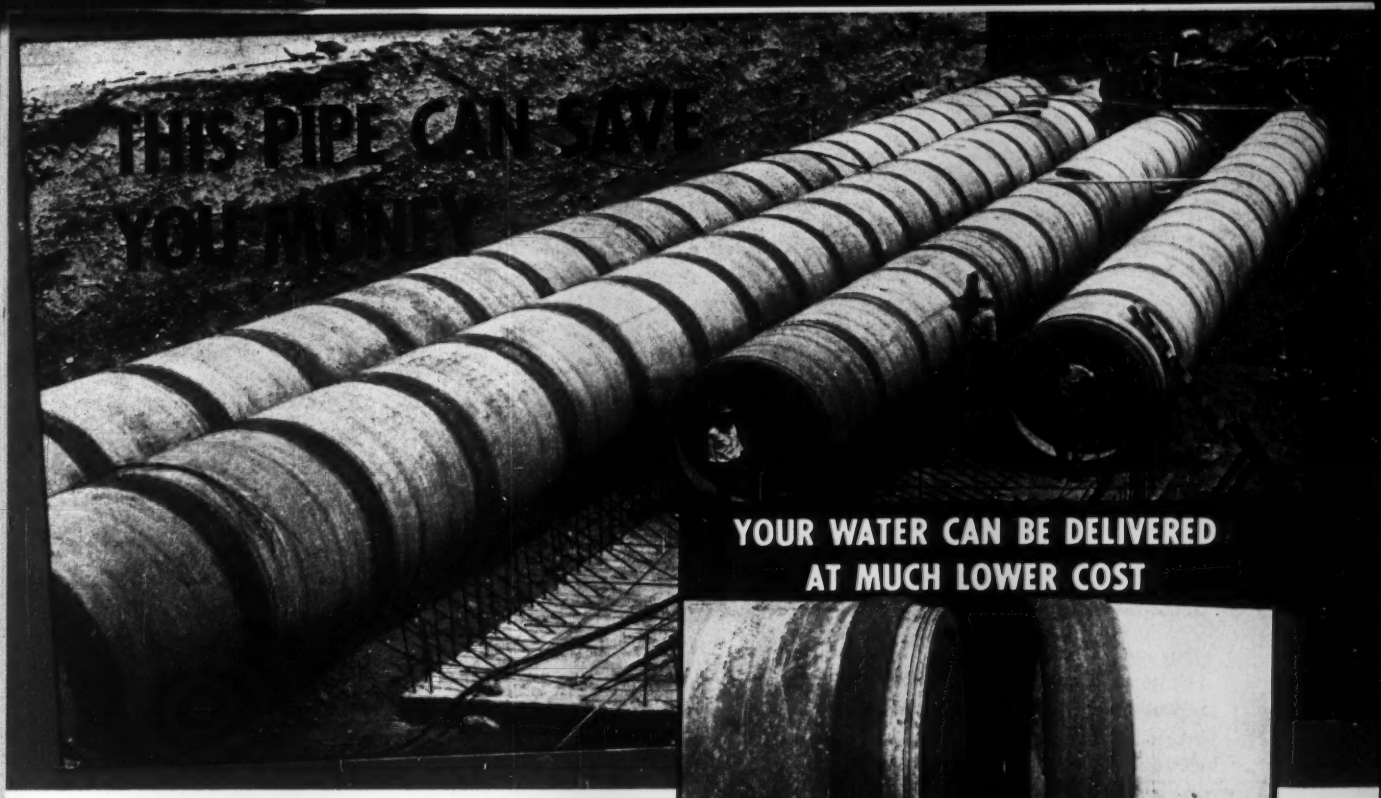
Joint meeting International Association for Hydraulic Research and Hydraulics Division of the American Society of Civil Engineers, University of Minnesota, Minneapolis, Sept. 1-4.

American Concrete Pipe Association, annual short course school of instruction, Sherman Hotel, Chicago, Ill., Sept. 10-12.

American Institute of Parts Executives, Denver, Colo., Sept. 13-18.

American Concrete Pipe Association, executive committee, Castti Harbour Hotel, Bermuda, Sept. 19-30.

National highway conference of county officials, American Road Builders Association, Lake Delton, Wis., Sept. 24-25.



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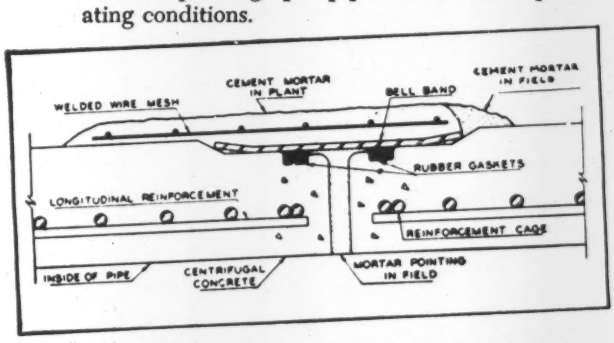

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- **Within wheels**—As always in a major labor upheaval such as is going on in New York City right now (see also p. 21) nothing is as simple as it seems.

  The dispute is ostensibly over wages—the carpenters wanted more, the employers (or some of them) didn't want to give in.

  But behind the surface reasons there are other, and more significant ones, for the construction industry: a political play within the powerful Building Trades Department of AFL, with the New York Carpenters acting as spearhead. The carpenters' long-standing bitterness at being lowest paid of the skilled trades; a battle for power in the city's Building Trades Council—and possibly a battle for national power in the Building Trades Department, are very much part of the picture.

  You can take this much for granted: Having knocked over, with no trouble at all, what appeared to be the biggest and toughest spot in the country, the carpenters—and with them other trades—are going to be hard to stop elsewhere.

- **Pressure for Hell's Canyon**—It's well to take note that a new group has entered the fight over Hell's Canyon Dam—this one to oppose development of the Snake River by the Idaho Power Co. Calling itself the National Hell's Canyon Association, Inc., it is made up of farm, labor, electric co-op and public power groups, and has employed former Assistant Interior Secretary C. Gerard Davidson as attorney for it in its intervention before the Federal Power Commission.

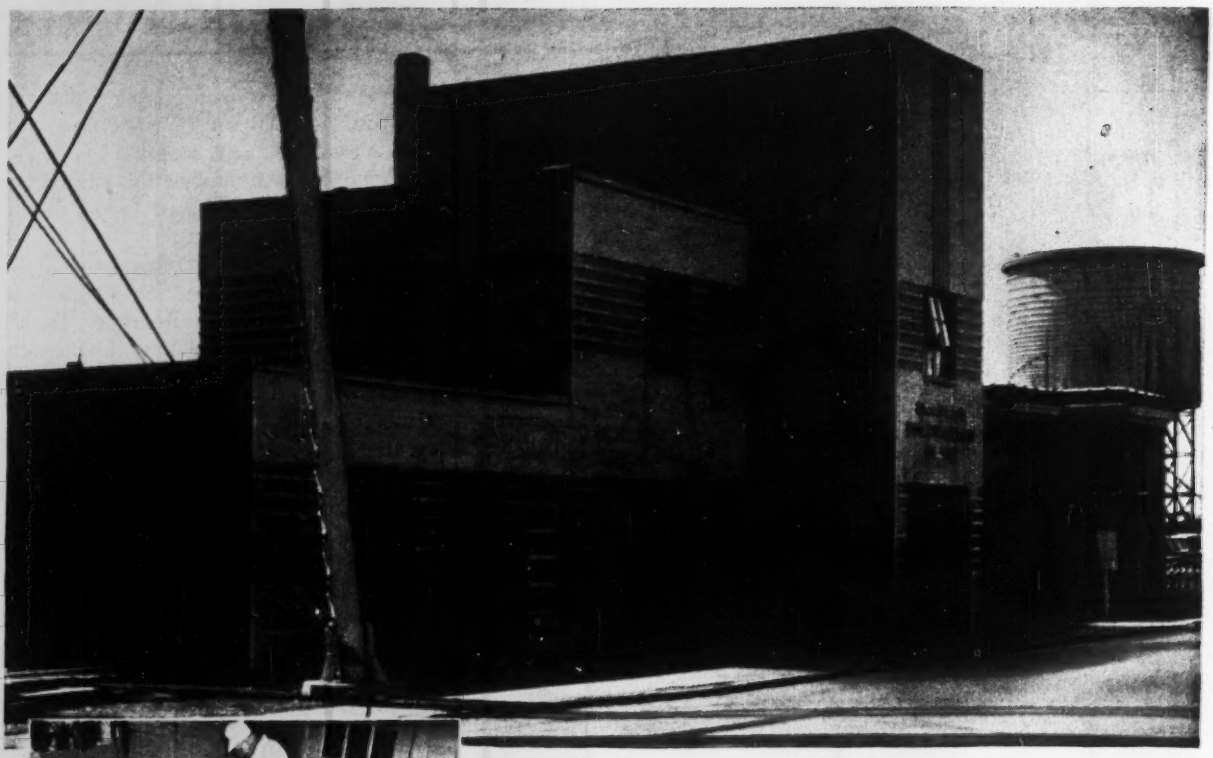
- **Facing salary facts**—One city and one state faced up to the salary facts of engineering life. St. Paul, Minn., upped municipal salaries July 1, to $10,248 yearly; utilities engineer, city architect, to $9,660; superintendent of construction, to $9,044; and graduates hired out of college for engineering work, to a starting salary of $4,200.

  And the Ohio legislature okayed a bill to give the state highway director $12,000 a year, and removed the requirement that he be a civil engineer.

- **Bond troubles**—Tightening money markets knocked off two more major construction bond issues: a $10-million school bond issue in New Orleans, and a $32-million issue of Oregon highway revenue bonds.

  New Orleans parish officials did some figuring, found that an offer of 4% interest would cost the parish $9.8 million in its issue in 40 years; Oregon, facing a statutory limit of 2½% interest on its bonds, was afraid it couldn't get that rate on a long-term basis.

- **Advance knowledge**—And tight money wasn't the only thing worrying Ohio's Turnpike Commission. James W. Shocknessy, OTC chairman, spoke publicly of his "shock and dismay" to find that his commission is required by law to advise communities of plans for routing the toll road.



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Permutit recommended the equipment shown at left, plus a carbonation tank. Turbidity is reduced to only 3 ppm . . . iron to 0.1 ppm. Hardness and alkalinity are reduced to specified requirements. Because of high Precipitator efficiency, each filter is backwashed only once a week for 20 minutes.

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The next big round of military construction won't get started this year. Pentagon experts have had trouble getting up plans for construction—other than spelling out how much money they would need to complete projects already started or approved. This might run to $400 million to be voted before Congress goes home. But even if this isn't done, the services still have enough carryover money in the kitty.

But the new Joint Chiefs will okay future programs—they don't take hold until next month—and they aren't likely to come to any conclusions before Congress adjourns.

The construction under review includes both U. S. and overseas projects. In the picture are such things as new bases in Spain, new strategic air bases in New England, and expansion of existing installations.

New construction programs will have hard sledding next year. Wilson will try to hold down such spending, and Congress is of a mind to follow through.

•

Two big public-vs.-private-power fights are being held over by Congress until next year.

Showdown on future TVA construction comes as a result of Congress cutting funds for the single steam plant TVA requested this year. The House cut the money completely, and the Senate seems certain to go along. TVA's hydro building is over—so the agency would have to get additional power from private sources outside the TVA area, if it can't get funds to build new steam plants as they are needed.

Plans of five New York electric companies for more power from Niagara Falls are also likely to be held over until next year. House was to vote this week on the proposal. But even so, the Senate can hardly get around to a vote. Eisenhower opposes the bill, he wants the Federal Power Commission to decide whether New York State, the U. S. government, or private firms should build the plants.

•

Big government power contracts to bring new industry to the Northwest are at an end. This is virtually assured in new power contracts being signed by Bonneville Power Administration with private utilities in the area.

New contract gives the utilities a break by giving them first call on any government-produced power available after needs of public systems and rural co-ops are taken care of.

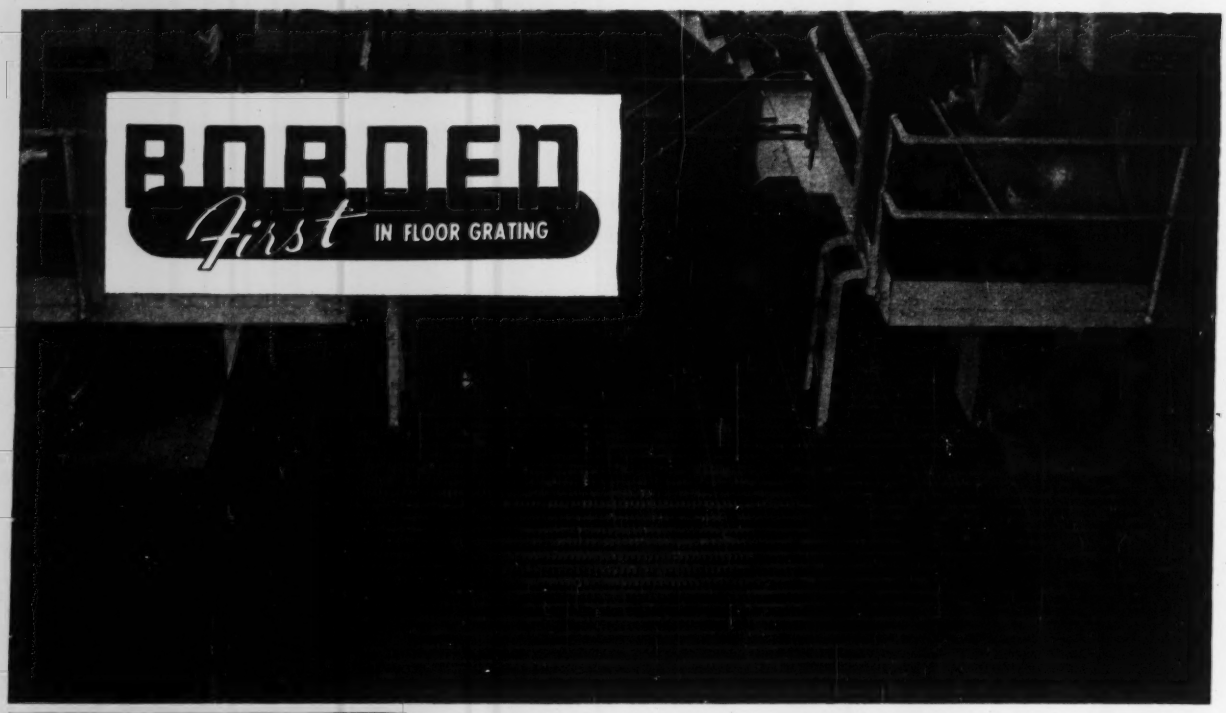
Bonneville Power Administration will meet outstanding commitments for power. But after this, any industrial firm of any size will have to buy from the utilities—or do without. The Democrats used deals for chunks of power as levers to bring such industries into the area.

•

The McCarran contracts disputes bill is getting caught in the congressional crush for adjournment. There's little chance the House will vote this year. The Senate has already voted the legislation, which gives contractors the right to get federal contract disputes into the courts. So the House can act next year.

•

Interest rates aren't likely to go higher for a while. Since the Treasury must borrow about $30 billion between now and the end of the year, the Federal Reserve is making certain that the bond market will buy these securities. It does this by buying government securities, providing banks with the reserves they need to buy more government bonds.



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ENR photo by Compton

CARPENTER LEADER Charles W. Hanson, president of NYC carpenters council, accompanied by Robert Johnson, secretary-treasurer, got his union a high wage raise.

NYC carpenters set wage mark

Metropolitan contractors upset pattern by paying highest rate of any carpenters local in nation

Maneuvering adroitly with strike threats, and taking advantage of a break in the solid front of New York City contractor associations, the carpenters of the nation's biggest city this week had obtained the highest wage of any carpenter local in the nation. And with their success came the quick threat of a runaway wage situation in what has been one of the most stable wage areas in the U.S.

To their base pay of $3.15 plus six paid holidays (figured at 3% or $.0945) and 3% for fringe benefits, the carpenters won these increases from the "heavy" contractor group—the General Contractors Association: an immediate rise of 15 cents an hour; 10 cents more on Jan. 1; 1% more in fringe immediately; 1% additional fringe on Jan. 1. All this on a three-year contract with which can be reopened after a year and a half for cost-of-living adjustments.

With this agreement pocketed, the carpenters swiftly won these parallel gains from three major carpenter employers affiliated with the Building Trades Employers Association: the same money concessions, but on a two-year, non-reopenable contract.

The wage agreements represented a departure from the pattern of wage rises that had been shaping up through the country as contractors and unions generally came to agreement (see page 31).

Moreover, the breakthrough came at a point which had been considered one of the strongest points in the construction industry's avowed wage line. Most observers had expected New Yorkers to hold the line on wages, or at most to conform to the national 10-15-cent-per-hour wages-raise pattern.

• **How the carpenters did it**—Led by Charles W. Hanson, president of the New York City District Council of the United Brotherhood of Carpenters and Joiners of America, AFL, the carpenters first put themselves on record as authorizing a strike—as required by the Taft-Hartley Act.

Most other building trades in the city did the same. Negotiations of all building trades then proceeded with the two main bargaining groups—the GCA, representing heavy construction firms, and BTEA, mostly building and light construction firms (ENR July 2, p. 28).

Negotiations stalled some time before the expiration of the contracts with the two contractor groups. Immediately the unions—represented by Building and Construction Trades Council president Howard McSpedon and the two contractor groups agreed to continue negotiations on an individual union-trade basis and not to stop work at the expiration of contracts on July 1. All agreed, that is, except Hanson and his carpenters.

Hanson and Charles Johnson, head of the New York dockbuilders local, then went before the GCA with their threat to strike—"no contract, no work." The BTEA members had meanwhile shown their determination to resist by rushing their projects along so that a strike would not catch them in a precarious stage of operations.

To the surprise of observers—and of BTEA, which had kept close touch with GCA—the GCA made the eventual 33.3-cent package agreement with the carpenters. A point in the negotiations: a carpenter threat to end their practice of working eight-hour, straight-time shifts for the general contractors (they work seven hours for all others.)

• **Enter the city**—BTEA members still held firm against any such increase. But, faced with a carpenter strike (which would probably have drawn in the other trades despite the no-strike-while-negotiations-are-on pledge) the city government acted by calling in representatives of the BTEA and the carpenters' leader.

After a short closed meeting with

the city's mediator, BTEA and Hanson agreed to meet. Such a meeting, however, was a foregone conclusion, in view of the capitulation of one segment of the contractor front.

The resulting second agreement was made late last week.

• **No solution**—But the settlement made by the carpenters did not mean that a pattern was established for peaceful settlement of New York labor contracts.

Firstly, the high carpenters wage upset the traditional balance of the trades. And it could be expected that other trades would seek higher wages to reestablish traditional gaps with the carpenters.

Secondly, members of the BTEA and GCA could see themselves being priced out of the construction market by this rising wage trend in view of increased competition and the falling off of construction business.

The unions, however, might not all demand the 33.3-cent package won by the carpenters. Observers point to settlements made by two small unions, the composition roofers and the mason tenders, which accepted 15 cents and 10 cents, respectively.

• **Other troubles**—Contractors in the area had other problems to worry about, too.

Late last week, the drivers of materials trucks, ready-mixed concrete trucks and excavation trucks struck for higher wages—reportedly requesting 50 cents an hour.

Such a strike can halt construction as effectively as a strike in the building trades.

In this case major contractors began to feel its effects immediately.

Channeling of federal highway aid into interstate systems is urged

Hearings on federal road programs by the McGregor Roads Subcommittee of the House Public Works Committee are drawing to a close. The subcommittee has been hearing testimony since mid-April and plans to wind up its business next week.

Witnesses have been asked to comment on several points of highway policy in order to give the committee some guideposts when they write a new federal highway aid bill next spring.

Appearing on behalf of the Automobile Manufacturers Association, James Cope, Chrysler Corporation vice president, recommended the federal government set up a highway program that goes a decade and a half into the future, instead of the usual two years.

He described the country's present road system as grossly inadequate, and pointed out that bad roads are costing the nation's drivers around $3 billion annually, as well as causing two out of five traffic deaths. Cope said that federal aid should be concentrated on the interstate system, which carries the heaviest burden in the highway network.

He suggested matching funds be authorized on a 10-year basis, instead of two, so that states could better plan and build the costlier segments of the system. He contended that toll projects are not the answer to the country's road problems; that there is a limited amount of mileage with sufficient long-distance traffic to make them feasible.

John V. Lawrence, managing director of the American Trucking Association, said his organization favors the repeal of federal taxes on fuel, vehicles and accessories and parts. He contended these excise taxes voted by Congress as emergency revenue during the depression, should now be repealed, just as similar taxes were repealed after World War I.

Revenue from automotive taxes shouldn't be linked to the federal road program, according to the ATA, since it is a basic responsibility of the federal government to maintain an adequate highway system for purposes of security and communication, and this system should be maintained out of the general fund. Lawrence thought that repeal of federal gasoline levies would give the states more latitude in their tax programs and allow them to asume a greater share of the road building burden.

In speaking for the United States Chamber of Commerce, Clem D. Johnston, who has been recently appointed head of the National Highway Users Conference, suggested that the Bureau of Public Roads concentrate its efforts on the primary interstate system instead of dissipating them over a large number of small projects. He also expressed the belief of the Chamber that federal funds should be used for construction alone, and that maintenance and repair should be the province of the states.

Members of the subcommittee seemed to look with disfavor on the idea of repealing any taxes, at least for the present, but there is sentiment that a larger share of automotive revenues should go to roads than the 25% now allocated.

Indiana toll road location determined

Final route selection has been made for the proposed $165-million, 150-mi divided four-lane toll highway across northern Indiana, which will give Chicago a superhighway link with the eastern seaboard via the Ohio, Pennsylvania and New Jersey Turnpikes.

Indiana's Gov. George N. Craig approved the state toll road commission's selection of the site for the western section from among several possibilities suggested by J. E. Greiner Co., Baltimore consulting engineering firm.

The western section will begin at Hammond on the Illinois line, run through East Chicago just north of the business district, pass through the northern part of Gary and East Gary and then east to a point south of Chesterton. The route east of Chesterton, previously selected, runs close to the Michigan line north of South Bend, Mishawaka and Elkhart to Metz, where it will connect with the Ohio Turnpike under construction.

Contracts are expected to be awarded next spring. It is estimated construction will take two years.

NSPE postpones action on affiliation with EJC

The board of directors of the National Society of Professional Engineers, at its annual meeting at Daytona Beach, Fla., again deferred action on an invitation to become a member of Engineers Joint Council.

Expansion of EJC to include representatives of all major engineering societies in this country was proposed last year by a majority of the "exploratory group to consider the increased unity of the engineering profession." The group also proposed expansion of the scope of EJC activities (ENR Feb. 21, 1952, p. 27).

An NSPE committee named to study EJC affiliation consists of past president John D. Coleman, Clarence T. Shock and Wm. F. Ryan.

Out-of-state bidders get break in Illinois

A ban on federal aid to Illinois highway construction has been lifted as a result of the state agreeing to abandon two prerequisites for road contract awards to out-of-state bidders.

One invalidated rule required out-of-state bidders to bring their equipment to Illinois for inspection before their bids were accepted. Another limited newly qualified contractors to $75,000 worth of work in the first year.

New Defense post

All military construction activities to come under new Assistant Secretary

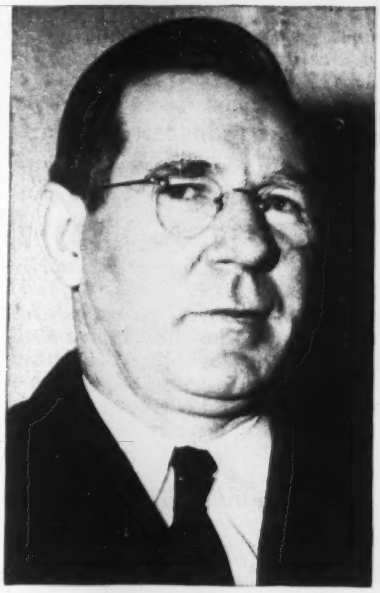
A new post of Assistant Secretary of Defense for Properties and Installations has been created in the Defense Department to handle all matters for the military services dealing with public works construction, real property management, reserve plants and facilities, and family housing.

Frank R. Creedon, who has been Special Assistant to the Secretary of Defense is now assuming the duties of the installations secretary under interim orders. Speculation in Washington is that Creedon is almost certain to be named to the post, when the Senate can consider the appointment.

Full details on operation have not yet been spelled out by Deputy Defense Secretary Robert M. Kyes, but it is expected that the construction activities of the services—the Navy Bureau of Yards and Docks, the Army Engineers, and the Directorate of Installations for the Air Force—at least will be under the administrative control of the new Assistant Secretary. And, chances are that one of the first jobs he will have is explaining the $400-million military construction bill expected to be considered by the House Approporiations Committee within the next couple of weeks.

Under Reorganization Plan No. 6 which revamped the Pentagon, a total of ten posts of Assistant Secretary were created—including a general counsel. Two of these are filled already—Wilfred J. McNeil, Comptroller, and Frank C. Nash, Assistant for International Security Affairs. The new appointments require endorsement of the Senate. For that reason Defense Secretary Wilson is likely to go slow in naming the top men.

• **Director's duties**—Creedon has been Director of Installations since the end of August 1952. His duties have evolved into eight principal functions: (1) maintain direct surveillance over planning and construction of all military public works projects, (2) keep the Secretary fully informed on the status, progress and most of the projects, (3) develop policies and co-ordinate the three military departments in keeping records of all facilities, (4) work up procedures for computing public works requirements, (5) develop uniform design criteria and construction standards, (6) resolve conflicts between the military departments over use of installations, (7) tell the services how to prepare their public works programs, prescribe the review procedures they are to use, and recommend the final programs to the Secretary, and (8) after programs have been approved by him, work with the appropriate assistant secretaries in preparing requests to go to the Budget Bureau and to Congress.



FRANK R. CREEDON pioneered the new post of Assistant Secretary of Defense for Properties and Installations.

This list of duties indicates a back-breaking job. But Creedon in less than a year in office has made a strong start toward mastering these duties and has even taken a change of Administration in stride. With that change—and the resulting freeze on new military construction—Creedon and his small staff of 26 took on the big job of reviewing all construction projects less than 20% complete. The review task on those projects is now pretty well finished.

At the same time, Creedon did the work that Congress wanted done when it created the job—making military construction intelligible to congressmen as well as to the Secretary of Defense. In fact, he performed so well that several senators criticized Eisenhower's reorganization plan for abolishing the office of the Director of Installations just when Creedon was beginning to make sense out of the program.

In an appearance before the Senate Armed Services Committee in February, Creedon gave the kind of plain talk congressmen want to hear. And charts that Creedon supplied on the programs of the three services gave committee members the basic picture they had been looking for on military construction authorized, money appropriated, and funds obligated.

Left over controls

Priorities, allocations for military and AEC projects are continued

Congress has extended the priorities, allocations and capacitiy expansion provisions of the Defense Production Act for two more years. Thus, builders on a Defense Department or AEC order are assured materials and equipment needed for the project.

Under the extension, the President is authorized to: (1) Require priority for military and atomic energy construction and manufacture, (2) allocate materials to military and atomic energy contractors, and (3) to stimulate expansion of strategic productive capacity through loans and purchase commitments.

The President also is given standby authority to extend materials allocations to non-defense consumers if and when he determines such action is needed for national security.

The new law provides statutory authority for the Defense Materials System set up by the National Production Authority earlier this year. DMS replaced the elaborate Controlled Materials Plan, under which metals have been rationed to defense and civilian consumers for the last two years.

This is how DMS works:

Military and atomic energy contractors receive metals allotments from the procurement agencies to cover defense orders. Steel, copper, and aluminum mills are required to set aside specific tonnages to fill these orders, and are then allowed to sell remaining output to any customer.

DMS' effect on availability of metals for non-defense consumers will be nil. It continues complete control only on nickel and nickel-bearing steel and partial control on columbium- or tantalum-bearing steels.

Engineer manpower survey

Another survey of the supply and distribution of 1953 engineering graduates and the need for engineers in industry is being conducted by the Engineering Manpower Commission for the Engineers Joint Council. Information also is being collected on engineer salaries in industry and in engineering education.

Engineer law change

A new California law effective Sept. 9 permits a licensed professional engineer to prepare plans and specifications and supervise work for alterations or repairs to a school building when architectural or changes are not involved.

Illinois and Wisconsin legislatures put their states in toll road parade

Session at Madison grants tax incentive to industry for anti-pollution work, hikes highway engineer pay—Chicago municipal improvements voted at Springfield

Both Illinois and Wisconsin are getting into the toll road act as a result of legislation creating commissions to study plans for multi-million-dollar projects that will tie-in with proposed toll highways of neighboring states.

The Wisconsin legislature, which recessed until Oct. 26, has taken a number of significant actions, including: (1) The grant of tax incentive to industries to spur stream and air pollution curbs, (2) a salary raise for state highway engineers, (3) permission for veterans to get loans for home repairs, and (4) a drastic overhaul of the state's truck tax system.

Illinois legislators, whose measures await the governor's signature, set the stage for a number of municipal improvements in Chicago, providing a stimulation for the city's campaign against slums and a tax measure looking to a $30-million sanitation construction program.

• Illinois

Illinois joins the parade of states marching under the toll road banner as a result of legislation creating a state toll highway commission with power to select sites and issue revenue bonds.

The three-member commission to be appointed by the governor for terms of 4, 5 and 6 years will have an initial fund of $436,000 for engineering studies and traffic surveys.

Three proposed toll projects have been under discussion in Illinois. One is a Chicago to St. Louis route. Another is for a highway from the Indiana state line at the Tri-State expressway west to the Mississippi River and from this Indiana point around Chicago to the Wisconsin state line. A third suggested route would join a projected Indiana toll road with a proposed Wisconsin turnpike to extend eventually to Minneapolis and St. Paul.

One of three constitutional amendments ordered placed on the ballot in 1954 authorizes the state to sell or lease the 96-mi long Illinois-Michigan canal for development as a route for a proposed southwest superhighway originating in Chicago.

• **Municipal improvements**—The legislature adopted several measures providing for municipal improvements in Chicago. One bill authorizes issuance of $15 million in revenue bonds to complete construction of O'Hare International Airport.

A pay-as-you-go six-year tax increase was authorized for the Chicago Sanitary District. This will add about five cents for each $100 assessed valuation to the regular 25 to 26 cents levy; enable issuance of non-referendum bonds to be discontinued and thus eliminate interest charges. The sanitary district plans to finance a $30-million construction program.

The legislature passed three measures affecting housing. One bill establishes an Urban Community Conservation Board which will designate potential slum areas and organize rehabilitation programs to prevent decay of middle-aged neighborhoods. The measure is designed primarily to help Chicago in its campaign against slums.

In another bill, private corporations owning 60% of the buildings in a conservation area are given the right to condemn, buy and sell, develop and improve the area.

A third housing measure requires neighborhood referenda before public housing can be built or expanded.

Three grants totaling $23.2 million were made for the construction of public buildings. For a state office building in Springfield, $12.5 million was appropriated. Toward construction of a convention auditorium and exposition building in Chicago, $5.7 million was granted from the state fair and exposition fund. An appropriation of $5 million was made for a state psychiatric hospital in Chicago.

• Wisconsin

A Wisconsin bill granting industries tax concessions for money spent on stream and air pollution may prove to be a model for other states seeking a speedier solution to their pollution problems.

The bill exempts water and air pollution equipment from local property taxes for five years. It further allows industries, for state income tax purposes, to amortize cost of the equipment over a five-year period instead of 20 years. This will enable firms to write off 20% of the cost each year instead of 2½%.

Wisconsin legislators also adopted a measure to aid industry in developing low-grade iron ore properties in the state. Treatment plants and lands devoted to the purpose, excepting townsites and workers' housing, would be exempt from property taxes. In lieu of these taxes, a levy on gross production of ore would be imposed.

• **Engineer salary raises**—In an effort to help the state department overcome its difficulty in recruiting engineers (ENR June 25, p. 23), the pay scale for engineers in the $315 to $740 range was boosted to $335 and $825. This was one of several categories of Civil Service to be granted raises.

The legislature voted to permit state loans of $1,000 to Wisconsin veterans for repairing or remodeling homes. Previously the state veterans' housing loans were limited to new construction.

The governor already has appointed a five-member turnpike commission to determine the feasibility of a cross-state toll highway (ENR June 25, p. 28). The proposed $170-million turnpike would roughly parallel existing Highway 12 from the Illinois line to Minnesota border near Hudson, Wis.

A state supreme court test of the toll road measure is expected in September. If the law is declared unconstitutional, the matter probably will be dealt with again when the legislature re-convenes in October.

• **Truck tax revision**—Other highway legislation passed at this session:

• A new truck tax calling for payment of a flat license fee based on weight, instead of the present license fee plus special taxes including the ton-mile levy. Fees under the new schedule range from $16 for 3,000 lb to 1,550 for 68,000 lb gross weight. Most trucks in the state would be in the $16 to $55 range. (The new tax measure is the result of the state's ton-mile tax having been declared unconstitutional.)

• Revised truck reciprocity law requiring out-of-state trucks to pay more for use of Wisconsin highways. This is designed to ease the financial burden on Wisconsin truckers and lower fines for first violations of weight limits.

• An increase in the overall length of combination vehicles from 45 to 50 ft, except for mobile homes which may be 60 ft.

• Authorization for Milwaukee to use state and federal highway funds to pay interest and principal on expressway bonds.

The legislature voted to create a commission to consider construction of a free bridge connecting Minnesota and Wisconsin in the Duluth-Superior area. The commission will take up the matter with a similar group of Minnesota legislators and report to the 1955 Wisconsin legislative session.

The city of Green Bay was authorized to build a water pumping station 30 mi away on Lake Michigan and lay water mains back to the city. Green Bay first will make a final effort to tap water on its doorstep, however, by testing a new system of wells. The city has been using artesian wells for decades. But, the dropping groundwater level has made existing wells inadequate.

The legislature voted a $13.7-million state building program.

Although not intended to regulate rainmaking activity, a new law requires that persons engaged in these enterprises notify the state's Public Service Commission of their plans and results.

The legislature voted to permit the Public Service Commission to require clearing of timber from flowage areas, in whole or part, before land is flooded by dam construction.

Power projects advance in British Columbia

Contracts totaling nearly $1.5 million have been awarded four British Columbia firms in connection with installation of the B. C. Electric Co.'s fourth new 62,000-hp hydroelectric unit at Bridge River.

General contract for the project went to Northern Construction Co. and J. W. Tewart Ltd., on a low bid of $887,000.

Fabrication of the 72-in. penstock will be done by Vancouver Iron Works Ltd., on a bid of $225,000. Steel sections will be set in place and bolted together in the 1,100-ft drop down Mission Mountain to the Seton Lake powerhouse by Arrow Transfer Ltd., which has previously handled the tricky penstock job for BCE at Bridge River. The figure for the job was $122,000.

Addition of the fourth generating unit at the Bridge River station will bring its capacity to 248,000 hp.

ONE OF THE LAST sections of new bridge is lowered into place during assembly on piles alongside Seattle pier.

Tidal action utilized in bridge moving

By harnessing the tides of Puget Sound for the operation, the Great Northern Railway was able to replace a branch line bridge with the loss of only one day's service.

A 755-ton steel draw span, 368 ft long, 22 ft wide and 34 ft high, was fabricated at Seattle by the Manson Construction & Engineering Co., on piles alongside the company's pier. Upon completion, all but supporting end bents and center bents were pulled away and two 120-ft barges were moved under the span. High tide floated the span free from the last bents and three tugs maneuvered the barges into Puget Sound.

The 80-mi trip to the bridge site took 20 hours. The barges moved through Puget Sound waters up into the Saratoga Passage, Skagit Bay, through the turbulent Deception Pass into Rossario Strait and around to Swinomish Slough.

High tides again were harnessed to place the new swing span in position and remove the obsolete bridge over navigable Swinomish Slough, 5½ mi south of Anacortes. As the tide dropped, the new span was lowered onto its pivot pier.

The old bridge was floated off its pivot pier that same day at high tide, for barging back to Seattle.

Great Northern forces then laid rail on the new span and completed the approaches to the two end piers, with the pivot pier of the old bridge serving as an end pier.

Supervising the bridge job for Great Northern were Norvin Ekrem, project engineer who designed the span, and R. W. Gustafson, assistant bridge engineer. George V. Guerin, Jr., is the railroad's bridge engineer. Arthur W. Frelick of Seattle held the contract for bridge erection.

TOUGHEST TOWING JOB was through narrow Deception Pass, where waters were turbulent.

BARGES ARE PLACED under the old swing span to float it clear of its pivot pier at high tide.

Specs for a weldable structural steel, lightweight aggregates ok'd by ASTM

Test results on behavior of engineering materials presented at convention's 33 technical sessions

Frederick S. Merritt
Associate Editor

Approval of specifications for a weldable structural steel and for lightweight aggregates were among the many actions taken by the American Society for Testing Materials at its 56th annual meeting in Atlantic City last week. ASTM also unveiled newly developed research data on the behavior of engineering materials.

More than 500 committee meetings were held for the purpose of developing new standards and improving old ones. In addition, 33 technical sessions were held for the presentation of research papers.

• **Climaxes 20-year study**—Several new specifications for construction materials were approved and progress on others reported. Most notable was the recommendation, after nearly two decades of study, by the A-1 subcommittee on structural steel of a tentative specification for a weldable structural steel.

Patterned after Interim Federal Specification QQ-S-00741 (GSA-FSS) 29 Jan. 1953, Steel, Structural for Bridges and Buildings, and essentially the same as the one for welded bridges just adopted by the American Welding Society, the new tentative specification differs from the commonly used specification for structural steel A7 in the limitations set on carbon and the requirements for tensile properties. Final adoption awaits additional approval by letter ballot, not only of the full membership of the subcommittee but also by committee A-1 and the society as a whole.

• **Concrete and aggregates**—Committee C9 on concrete and concrete aggregates approved three new specifications and two test methods. One of the new specifications covers liquid membrane-forming compounds for curing concrete. The other two are for lightweight aggregates for structural concrete and concrete masonry units. Work is still under way on a standard for lightweight aggregates for insulation concretes.

Of the two new test methods, one is for the resistance of concrete to slow freezing in air and thawing in water (supplementing freezing and thawing tentatives C 290, C 291, and C 292). The second is for flyash as an admixture for portland-cement concrete. It indicates chemical and physical tests to be performed to reveal the important properties of the material.

Development of a specification for flyash itself is still under way.

Committee C-11 on gypsum recommended adoption of two specifications. One is for gypsum formboard for poured-in-place gypsum-concrete roof decks. The second is for gypsum concrete: It covers mill mixes consisting essentially of calcined gypsum and wood chips, wood shavings, or mineral aggregates, requiring the addition of water only at the job. Maximum density of this concrete is set at 69 lb per cu ft and minimum strength at 500 psi.

• **Brittle failures discussed**—Nearly 200 research papers were presented in the technical sessions, many of which were symposiums.

The nature and causes of brittle failures of steel structures were analyzed in a comprehensive analytic symposium on the behavior of metallic materials at low temperatures. Five technical sessions over a three-day period were devoted to this subject.

In explaining the nature of brittle failure, researchers pointed out that in tension tests, standard unnotched specimens failed by shear (along slip planes) at normal temperatures. But at low temperatures, they fracture without measurable elongation by cleavage (along planes within individual crystals). However, if the specimens are notched, the ratio of maximum shear to maximum tensile stress is reduced; hence, brittle fractures can occur even at room temperatures.

Welding tends to provide crack starters because of such weld defects as inclusions, cracks and incomplete penetration, Earl R. Parker, of the University of California, Berkeley, Calif., said. Chemical constituents of both weld and base metals also are involved—carbon, phosphorus, and nitrogen raise the temperature at which brittleness occurs, where as manganese and silicon (below 0.15%) lower the transition temperature. Other speakers discussed the significance of tests for impact properties and notch sensitivity in the evaluation of brittleness.

• **Fatigue characteristics**—Notch effects were also considered in other technical sessions, particularly since they influence fatigue characteristics of metals. A significant study in this direction was reported by Prof. Frank Baron and Edward W. Larson, Jr., of Northwestern University, Evanston, Ill. Their investigation was intended to shed light on the relative behavior of high-strength structural steels and carbon structural steels when subjected to fatigue loads. Test specimens used in this study were made of seven low-alloy steels, four silicon steels, three ordinary carbon steels and one rimmed steel: They were long and narrow and had a 1⅛-in. dia hole at the center.

The tests show that for a given net-section stress, the low-alloy and silicon steels, in general, have a greater resistance to fatigue. They also indicate that fatigue lives are more closely related to the maximum longitudinal tensile strains at the edges of the holes than to either the average stresses or the maximum stresses on the net sections of the specimens. Surface roughness and residual strains have a noticeable effect on fatigue strengths, whereas internal structure apparently is unimportant.

Baron and Larson also reported some interesting conclusions from tests they carried out on a high-strength rivet steel developed by Bethlehem Steel Co. As ductile as ordinary carbon rivet steel, and driven just as easily, rivets made from the new steel proved to have some advantages over other steels meeting the requirements of ASTM Specification A195-52T. At grip lengths of 4 in. or more, the average clamping stresses of the high-strength rivets are appreciably greater than those of other steel rivets. As a result, fatigue strengths of joints fastened with the high-strength rivets also are greater.

• **Porcelain-enameled steels**—A symposium on porcelain enamels and ceramic coatings as engineering materials brought to the fore some interesting facts on the behavior of two dissimilar materials when fused together. Tension tests on porcelain-enameled steels reported by W. A. Deringer, director, ceramic-organic research and development, A. O. Smith Corp., Mil-

New officers

Leslie C. Beard, director of Socony-Vacuum Laboratories, New York City, was elected President of the American Society for Testing Materials. Named vice-president was Claire H. Fellows, director of the Detroit Edison Co., Engineering Laboratory and Research Department, Detroit, Mich.

waukee, Wis., show that the coating cracks at a definite strain and is not effected by the strength of the base metal. This strain for enamel on iron is near enough to the yield point of the metal, that for all practical purposes when the yield point is exceeded, the coating cracks. (This property has made practicable thin porcelain-enamel steel sheets that can be handled like wall paper.) The coating on enameled, high-strength stainless steel, however, cracks long before the yield point is reached.

Most porcelain-enamel finishes are highly resistant to weathering, concludes D. W. Moore, ceramic engineer, of the National Bureau of Standards, from an inspection of panels exposed at four locations for seven years. His data also indicate that if proper care is taken to insure good coverage of all surfaces of the panel, even the poorest enamels will provide corrosion protection for many years. If surface appearance is important, however, he recommends that only enamels with good acid resistance be used.

• **Predicting concrete qualities**—Two papers presented at a technical session on concrete appear noteworthy because they offer a means of predicting the quality of concrete.

In the first paper, Prof. Clyde E. Kesler, of the University of Illinois, and Yoshiro Higuchi, research engineer, Japanese National Railways, Tokyo, collaborated on a report on the determination of the compressive strength of concrete from its sonic properties. They found that dynamic modulus of elasticity and logarithmic decrement (a measure of the damping capacity of the concrete, which is related to the coefficient of viscosity) can be used together to estimate compressive strength. Curves plotted from test data, they said, enabled them to predict strengths within an error of 5%.

In the second paper, E. C. Higginson and D. G. Kretsinger, of the Bureau of Reclamation, suggested that the freezing-and-thawing durability of concrete can be predicted from the expansion occurring in saturated concretes during the measurement of coefficient of expansion. They were, however, unable to correlate durability with thermal coefficients and diffusivity (related to specific heat and conductivity) of aggregates.

• **Foundation studies**—Two symposiums were of particular interest to foundation engineers. One rounded up the latest information on the behavior of piles under the action of lateral loads:

- Batter piles improve the resistance of a pile group to lateral loads.
- Resistance to lateral loads in the direction of the batter exceeds that for loads against the batter.
- Overdriving appears to increase the deflection.
- Increasing the length does not improve the resistance to lateral deflection if the piles are already embedded sufficiently to prevent movement of the lower portion.
- Resistance to lateral movement in a poor material may be improved, however, by an increase in pile length.
- Increasing the size of the pile may increase lateral resistance.
- Ultimate penetration or bearing capacity may not be a measure of lateral resistance.
- Resistance of the soil may not be a linear function of its deflection.

The second of these symposiums covered dynamic testing of soils. Prof. F. J. Converse, of California Institute of Technology, Pasadena, Calif., described tests leading to the conclusion that operation of a vibrator at resonant frequency is the key to the problem of obtaining maximum compaction of sand. Effective compaction can be obtained to a depth of about twice the width of the oscillator, he said.

E. D'Appolonia, of Carnegie Institute of Technology, reported that Vibrofloation is an effective method of compacting loose sand. In this method, vibrations are produced by a long, slender, rotating-eccentric tube.

Commissions to study Klamath River post

California's Gov. Earl Warren has signed a bill creating a five-member Klamath River Commission to cooperate with a similar body in Oregon in formulating an inter-state compact governing distribution and use of the waters of the Klamath River, which flows in both states.

The California commission is to consist of state engineer A. D. Edmonston and four members appointed by the governor.

The legislation, effective September 9, provides that no compact or agreement is binding on the state until approved by the California legislature and the Congress of the United States.

Washington road study

The Washington State Highway Commission has retained the Automotive Safety Foundation of Washington, D. C., as a consultant in connection with development of a long-range highway-improvement program. It has set aside $50,000 for the study. The plan will be based on priority of projects so it can be used as a guide for future highway construction, said William A. Bugge, state director of highways.

Job in Turkey

U.S. firm in low bidding group on hydro project

A total of 24 construction firms—including eight from the United States—entered bids for the construction of Seyhan Dam, in Turkey, last week. The contract award went to Morrison-Knudsen, Inc., in association with a French and a Turkish concern, for a low bid of $14,334,451.

The project—on which Knappen, Tippetts, Abbett, McCarthy of New York City are consultants—will entail a 5,000-ft earthfill dam 225 ft high, a powerhouse that will eventually house three 22,500-kva units, and irrigation features. Financed by the International Bank and by the Turkish government, the dam will be located on the Seyhan River near Adana, on Turkey's Mediterranean seacoast.

In its low bid, Morrison-Knudsen was associated with the Societe de Construction des Batignolles, of France and the Garanti Construction Co., of Turkey.

The contract is a cost-plus-fixed-fee-type, based on a target bid for adjustable labor, material and fixed-charge costs.

A list of the bidders and their bids (converted to U. S. dollars at the rate of one Turkish lira equaling 36 cents):

- Morrison-Knudsen, Inc. (sponsor),
  Soc. de Constr. des Batignolles (France),
  Garanti Constr. Co. (Turkey) $14,334,451.20
- Chas. H. Tompkins Co. (sponsor),
  J. A. Jones Constr. Co.,
  Beton-Monierbeau (German),
  Rebii Gorbon (Turkey) ... $15,437,833.69
- Philip Holzmann (German),
  Siemens Bauunion (German),
  RAR Turk Ltd. (Turkey) .. $18,268,926.95
- Gordon-Hamilton Constr. Co. Inc. $18,442,010.52
- Weis & Freitag (German),
  Grun & Bilfinger (German),
  Muzaffer Budak (Turkey) . $19,947,130.20
- Movitor (Italy) $19,948,966.20
- Utah Construction Co. (sponsor),
  Condon-Cunningham Co.,
  Soc. General d'Enterprises (France),
  Indus. de Travaux (France) $25,612,583.40
- Gunther-Shirley (sponsor),
  Byrne Organization,
  Okcuoglu-Diker (Turkey) . $26,729,987.80
- Heilman-Littman (Germany),
  Polensky-Zollner (Germany) $29,915,031.28

Strike deadlocks in three states

Negotiations are stalled in three widely separated states as unions and employer groups cannot agree

Three far-flung strikes affecting the construction industry continue to tie up work on major projects in Delaware, Missouri, and California. Negotiations between unions and employer groups have come to a standstill—with no immediate solutions in sight.

Here is how the situation stands in the deadlocked areas:

• **California**—Construction throughout the north and central parts of California is caught in a pincer movement—between a selective strike by the AFL laborers union and a shutdown order by the Associated General Contractors. A wage dispute started both actions.

From Fresno to the Oregon border, contractors ceased operations June 23. The AGC claims the shutdown is now 98% effective—halting $500 million worth of work on 1,000 jobs and putting 125,000 laborers out of work.

The union says all but 1,000 of its members are working and claims 1,000 independent contractors and associations representing another 650 contractors have sidestepped the AGC order and signed separate union agreements calling for a $2 hourly wage. Some contractors agreed to a 20-cent hike—the original demand—but the union allowed them to slip to a 15-cent raise when laborers agreed to this figure in negotiations with the AGC.

The shutdown followed an eleventh hour negotiation session which tried to avert the crippling lockout agreed upon by directors of northern and central AGC chapters. Both sides made conciliatory offers but withdrew them when the meeting ended in a deadlock. The contractors refuse to top a 10-cent increase which would boost the basic scale to $1.95. Laborers insist on $2 an hour.

Since the collapse in negotiations June 22, on the eve of the shutdown, federal conciliator Arthur Viat has been attempting to renew talks—but without success.

• **Missouri**—Construction of all types—from bridges to stores, roads to homes—has been shut down in the Kansas City metropolitan area for the last six weeks.

Refusal of O. L. Ring, head of the striking construction and building materials truck drivers, to move the products—plus bitter inter-union squabble—prompted the shutdown.

The issue has become so heated that the Most Rev. Edwin V. O'Hara, Bishop of the Kansas City Catholic Diocese, made an effort to bring the union and heavy constructors' association and the builders' association together—to no avail. Ring is against the builders' group; but his contract with the heavy constructors has expired, and he has been in so far fruitless negotiations with representatives of that employers group for two weeks.

The paralyzing strike reached a climax on May 29, when Ring pulled the AFL teamsters and chauffeurs union out of the Building and Construction Trades Council, 24 hours after boilermakers and sheet metal workers also had quit the council.

Latest developments came June 8, when the heavy constructors' association made a statement of policy; and on June 11, when seven construction crafts rejected a contractor-sponsored plan to arbitrate inter-union feuds. Since that time, no progress has been made in a series of meetings which were held between union and employer officials.

• **Delaware**—Construction was snarled late this week (for the ninth week) by the carpenters' union, largest building trades union in the state. It voted to reject a 12½-cent, two-year contract proposal.

The union, which also voted to picket any and all union building operations in the area, acted after the 9-week-old strike seemed to be on the verge of settlement. Five craft unions signed new contracts and two others agreed to terms, but had not yet signed contracts.

Two additional unions—the plumbers and steamfitters—rejected the offer but they did not set up any picket lines.

Workers started to troop back to their jobs earlier in the week, after five of the unions agreed to the 12½-cent hourly wage boosts, but all projects have now come to a standstill by the carpenters' action.

The carpenters are seeking a 20-cent-an-hour pay increase and another 10-cent-an-hour raise for the second year—the same increase recently won by the carpenters' union in Philadelphia.

Supplying men is up to union, court says

In a decision that may have far-reaching implications, Appellate Division for New York's Second Judicial District last week declared that a union may refuse to supply men to a contractor without giving any reason at all.

The unanimous appellate court decision was a reversal of a lower court award of nearly $75,000 to a contractor against a labor union and its officers.

The action started in 1948, when Local 46 of the wood, wire and metal lathers international union backed an action of its executive committee and declared it would not work for Reinforce, Inc., a subcontractor which then had about a half-dozen jobs around New York City. The jobs included the Esso Building in Rockefeller Center, work on the Brooklyn-Battery Tunnel, an office building, a housing development in Manhattan, and others.

The company immediately brought suit, in its own name and in that of Thomas Foley, the principal owner. Defendants were Hugh Birney, president of the union local, and two business agents, and others. The contractor charged he had been damaged by refusal of the union to supply men to his jobs, and that the action had been taken with malicious intent to damage his business.

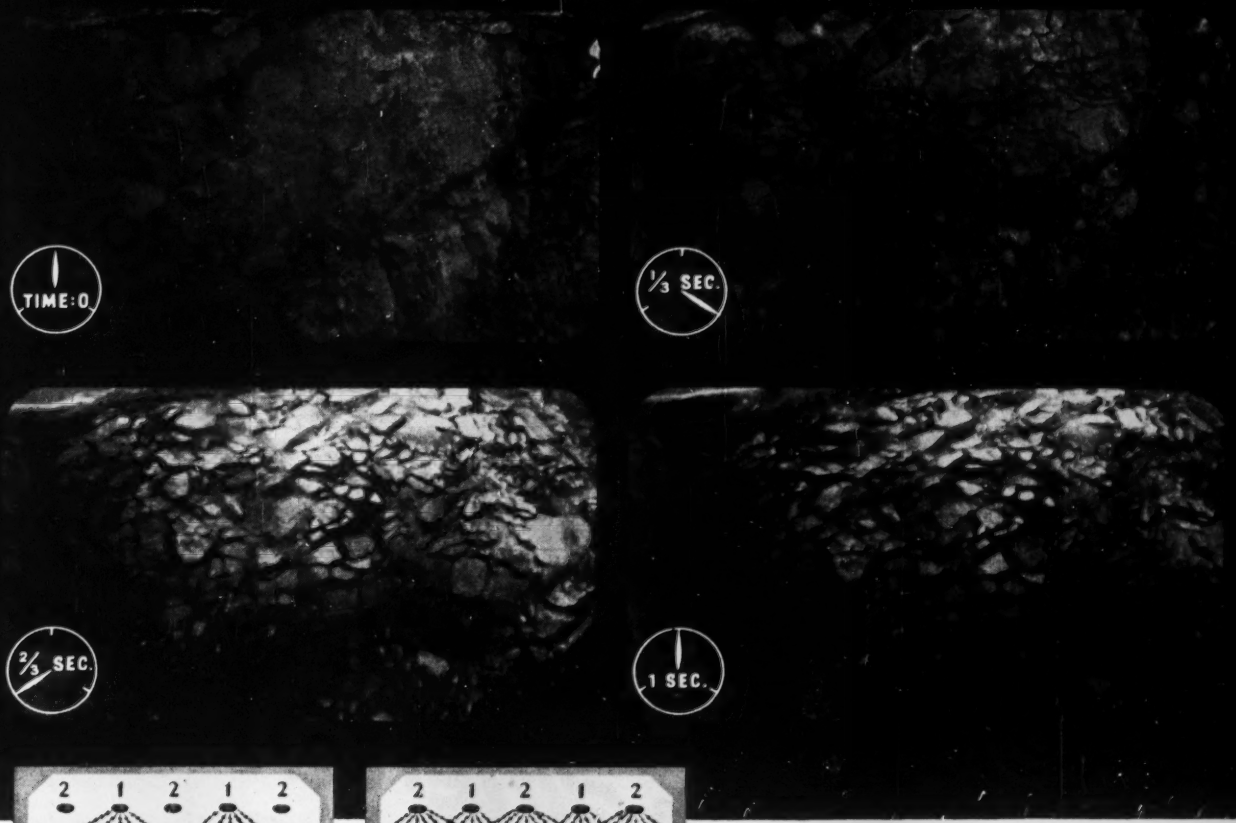
A supreme court jury at Mineola, (a Manhattan suburb) agreed with the plaintiff, and awarded the contractor damages totaling about $75,000.

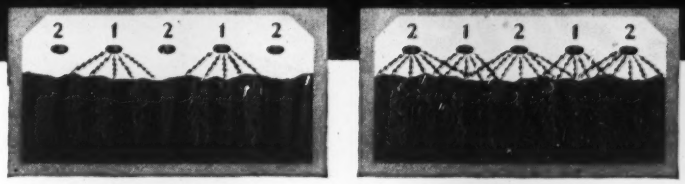
Said the appeals court, in reversing the decision:

"The members of the union, who ratified the determination of their executive committee, had the absolute right to refuse to work for the plaintiff—for any reason, or for no reason at all. The element of malice, therefore, is immaterial."

the inside story

Here's how ROCKMASTER* gives better breakage





The first delays put the rock under stress. Then the number two punch of the second delays cuts across the lines of force at points of maximum stress giving maximum breakage.

THIS unusual sequence of photos shows explosives force, first swelling and then bursting a solid face of granite. It is visual evidence of the excellent breakage possible with the ROCKMASTER blasting system used in an alternate pattern.

Theory behind the breaking action of this pattern is that the first delays, detonating within definite limits of controlled timing, place the entire burden under stress. Then at the moment of maximum tension the second delays, also firing with controlled timing, throw the second punch which produces a wedging and bursting action throughout the burden. The explosives gases of alternate ROCKMASTER blasting can be kept under prolonged confinement, reducing both air blast and ground vibration to a minimum.

Alternate action cannot be duplicated by progressive milli-second delay firing methods or by any form of top detonation.

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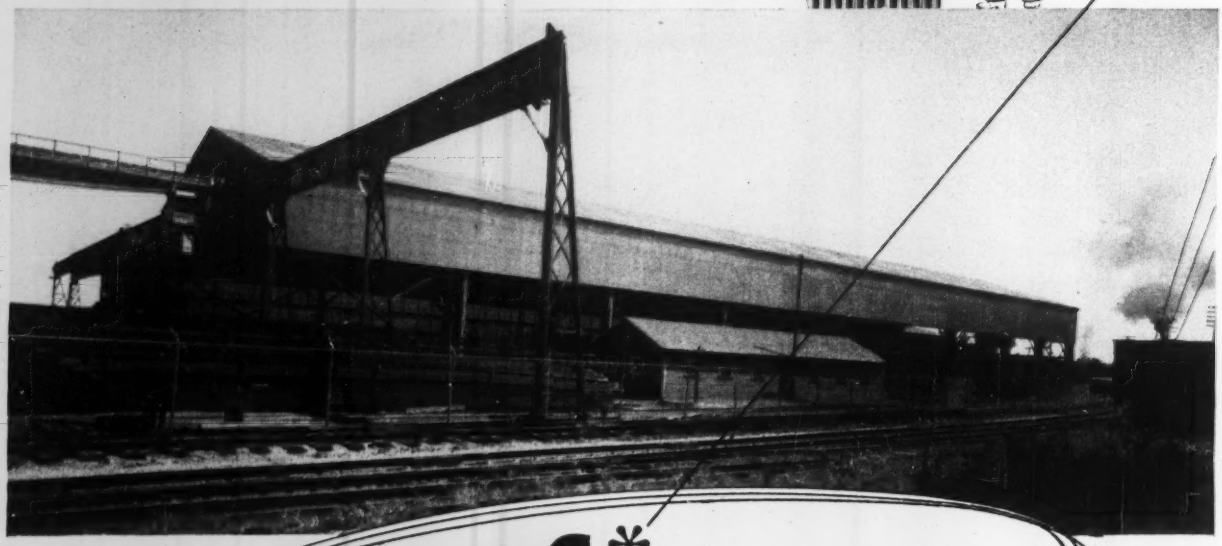

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10 to 15-cent an hour up trend of wages continues

In the second tabulation of wage raises granted to the construction trades in the largest 20 U.S. cities, the trend indicated in the first tabulation (ENR June 4, p. 30) is again confirmed.

The present wage increases are holding close to the 10-15-cent an hour pattern.

As of July 1, wage boosts have been reported for 79 construction unions in 20 cities by ENGINEERING NEWS-RECORD reporters. Of these, 63% have been increases of 10-15 cents per hour; 15% have been for raises of more than 15 cents, but not more than 20 cents per hour.

• **Various trades**—The average increase for common labor is 11.3 cents, with 11 cities reporting so far.

Among the skilled trades, bricklayers have the lowest average (10.6 cents) based on reports from 9 cities. Carpenters are averaging 14.6 cents and structural ironworkers, 15.3 cents, with 12 cities reporting

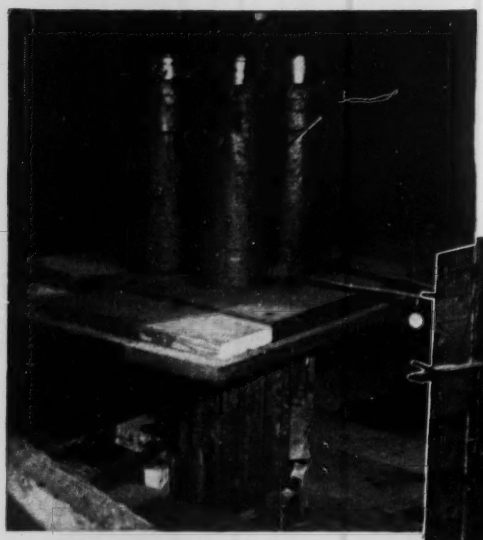
Other skilled trades show the following average wage hikes: steamfitters (8 cities reporting) 14.7 cents; electricians (7 cities) 15.3 cents; hoisting engineers (8 cities) 17.4 cents; plasterers (7 cities) 17.4 cents.

Pattern of 1953 Construction Wage Increases

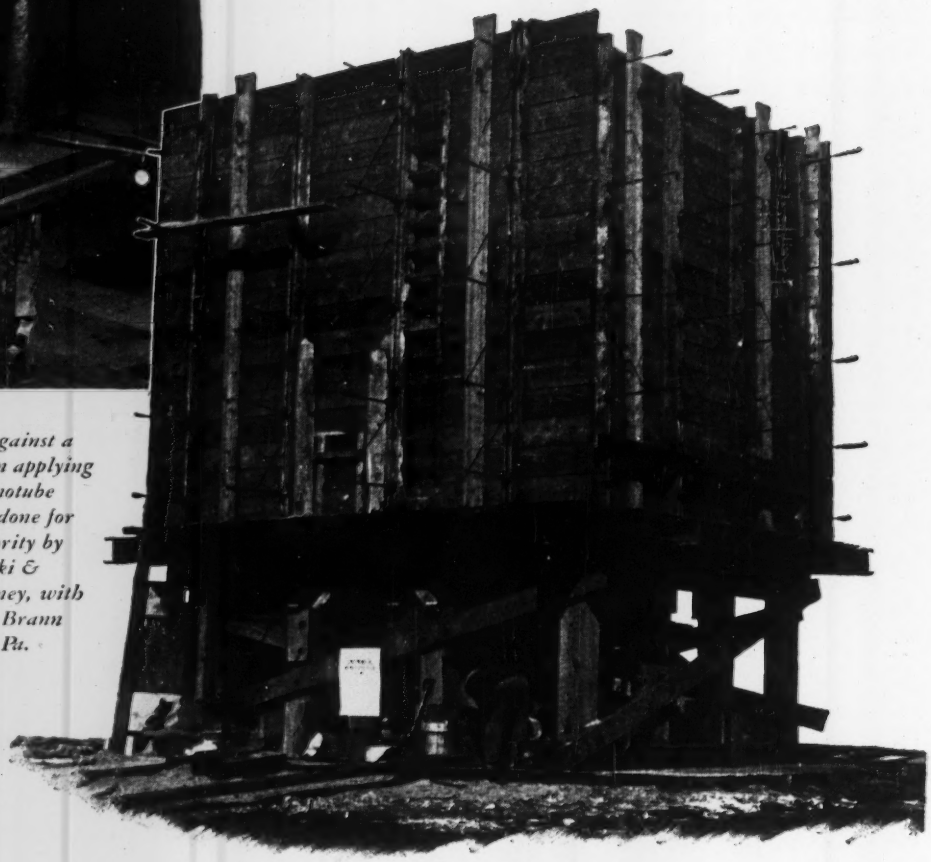
Based on reports to Engineering News-Record

Amounts in brackets show increase asked

City	Common labor	Bricklayers	Carpenters	Structural ironworkers	Other trades	
Atlanta	7¢	Negotiating, increases expected to range 4–8%				
Baltimore	(16¢)	(25¢)	....	15¢	Steamfitters: 10¢ Painters: 10¢	Hoist. engrs.: 25¢ (30–50¢) Plasterers: 12.5¢
Birmingham	....	....	....	25¢	Hoist. engrs. } 10¢ Truck drivers }	Electricians: 12.5¢ Steamfitters: 15¢
Boston	Negotiating		12.5¢	Negotiating	Plasterers: 15¢	
Chicago	15¢	15¢	15¢	15¢	Electricians: 15¢ Hoist. engrs.: 20¢	Plasterers: 9.5¢ Steamfitters: 15¢
Cincinnati	10¢	10.5¢	(30¢)	10¢	Plasterers: 12.5; + 5¢ 12/1 Electricians: 10¢; + 10¢ 9/1	Steamfitters: (25¢)
Cleveland	12.5¢	13¢ (For welfare fund; asking addit. incr.)	12.5¢	17.5¢	Hoist. engrs.: 12.5¢ Truck drivers: 25¢ Steamfitters: 12.5¢	Plasterers: 17.5¢ Electricians: 12.5¢ Other trades: 5¢
Dallas	7.5¢	....	....	12.5¢	Several contracts expire 7/1	
Denver	(17.5¢)	5¢	(25¢)	....	Steamfitters: 15¢ Electricians: 10¢	Most unions still negotiating
Detroit	10¢	12¢	15¢ (Incl. 5¢ ins.)	5¢	Truck drivers: 17.5¢ Electricians: 17¢	Hoist. engrs.: 30¢ Steamfitters: 25¢
Kansas City	On strike	(Asking pension fund)	12.5¢	12.5¢	Hoist. engrs. } On Truck drivers } strike	
Los Angeles	11¢	Negotiating	13¢	15.5¢	Hoist. engrs.: 12¢ Truck drivers: 11–12¢	Tractor, shovel, crane operators: 13–14¢
Minneapolis	13¢	7.5¢	10¢ + 5¢ Aug. 1	10¢	Electricians: 20¢ Steamfitters: 15¢	Hoist. engrs. } negotiating Plasterers }
Montreal	No negotiations so far for higher wages. Most contracts being renewed for '53–'54					
New Orleans	15¢	10¢	10¢	10¢	Plasterers: 7.5¢ Steamfitters: 10¢	Hoist. engrs.: 10¢ Electricians negotiating
New York	Hvy. constr. (25¢) Bldg. (25¢ + fringes)	15 bldg. trades asking 40¢ + 20¢ in fringes				
Philadelphia	(25¢)	(25¢)	20¢	Asking 25¢ incl. fringes. Settlement expected: 10–15¢		
Pittsburgh	12.5¢	7.5	20¢	35¢	Hoist. engrs.: 25¢	Plasterers: 22.5¢
St. Louis	10.5¢	Contract runs to 12/31/53	17.5¢	(25¢)	Hoist. engrs.: 5¢	
San Francisco	(15¢)	15¢	12.25¢	Negotiations to start soon	Truck drivers: (15¢)	Tractor, shovel, crane operators: (25.5¢)
Seattle	Only wage increase expected is 10¢ per hour for health and welfare funds					



4 hydraulic jacks bearing against a huge sand-filled crib, used in applying 250-ton load to a single Monotube pile. This testing work was done for Delaware River Port Authority by consulting engineers Modjeski & Masters—Ammann & Whitney, with pile driving and loading by Brann & Stuart Co., Philadelphia, Pa.



250-TON PROOF

of Monotube load-bearing performance

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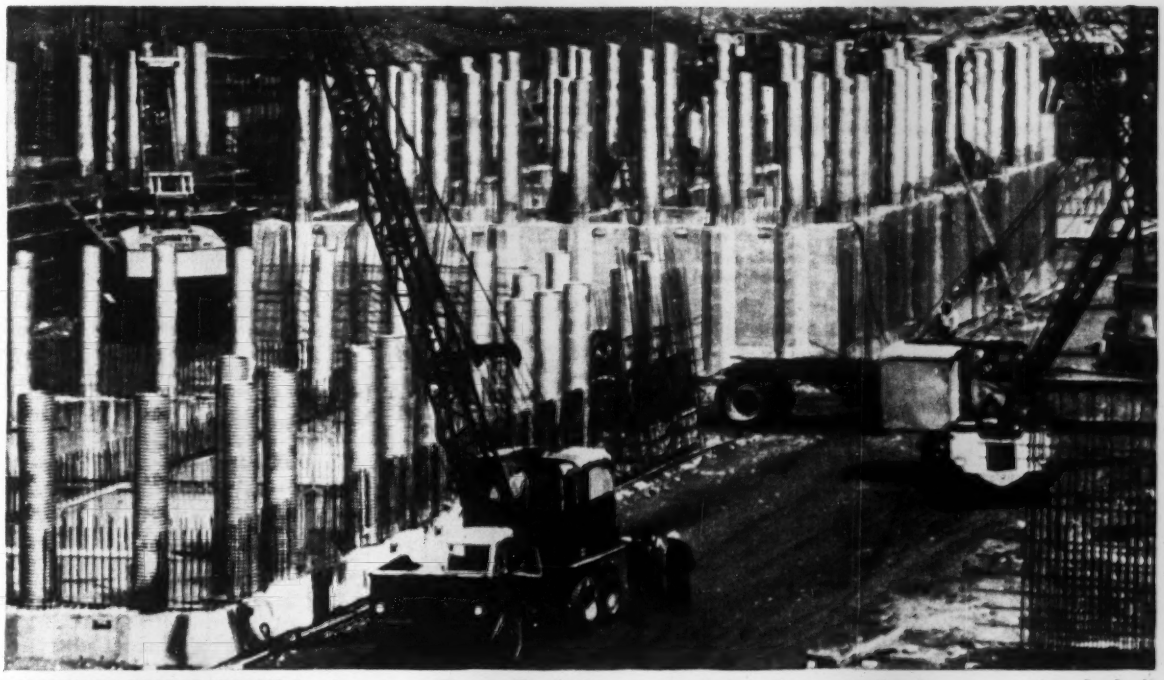


CONCRETE FOUNDATIONS for river piers at Tappan Zee Bridge over the Hudson River are hollow boxes precast in a dry basin.

Building big buoyant boxes for bridge substructure

Taking advantage of experience gained on a similar job, Corbetta Construction Co., Inc., is completing the floating-box foundations for the Tappan Zee Bridge one month ahead of schedule. Though work was started on them in mid-February, the boxes will be completed by late August under the present construction rate.

Design of the 3-mile bridge (crossing the Hudson River between Tarrytown and South Nyack, N. Y.) calls for eight submerged, watertight, precast concrete boxes with sufficient buoyancy to support 80% of the dead load of the bridge. Piles will carry the other 20% plus live loads.

The boxes are similar in design to those used for Pier 57 (ENR July 31, 1952, p. 36). They vary in size from 100 x 190 ft by 35 ft high to 56 x 110 ft by 32 ft 10 in. high.

The Tappan Zee Bridge will carry the New York State Thruway across the Hudson River. Expected to cost $60 million, the bridge will be 15,300 ft long. The main spans, of steel-cantilever truss construction, will be 602-1,212-602 ft (ENR April 23, p. 25). Towers for these and four contiguous spans will rest on the eight buoyant boxes.

• **Boxes built far from bridge**—Construction took place about 10 miles north of the bridge site, at Haver-

Work-saving ideas used for Tappan Zee boxes

• **A job-built traveling scaffold** consisting of a platform was mounted on a flatbed truck. The truck was driven around the perimeter of the boxes to points where scaffolding was needed. Scaffold sections were added and removed, according to need. Some uses: to tighten bolts on wales, for welding, to set reinforcing mats, to apply curing compound to fresh cement. Ladders had been used for work on the Pier 57 boxes. The improvement in working conditions was relatively high for the small investment.

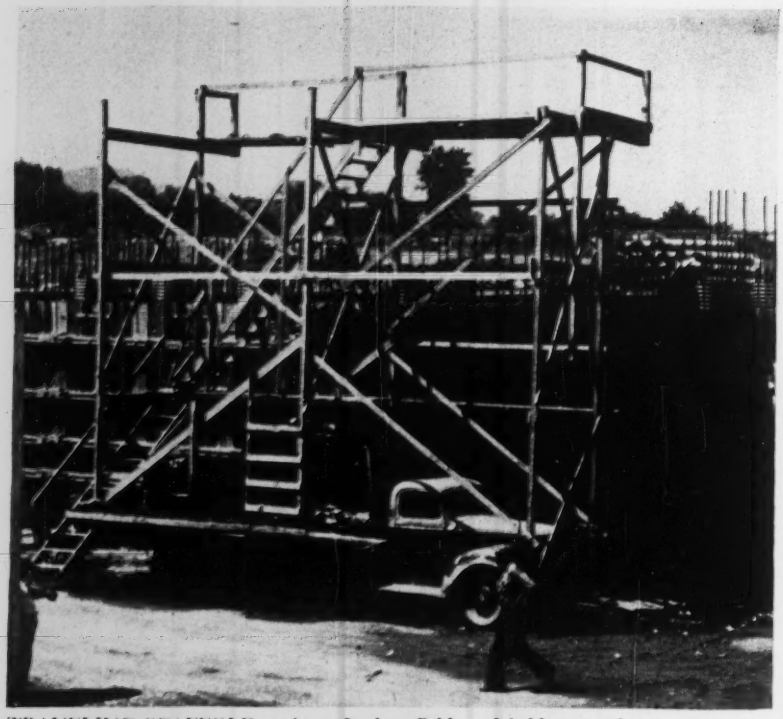
• **The bottom intermediate-deck form** was used as an interior scaffold. This platform was moved up by crane as work progressed.

• **Steel-angle-iron jigs** for reinforcing-mat prefabrication. Angles were nailed to wood, making it easy to revamp the jig.

• **Inside wall forms were** not butted together tightly at intersections. Instead, there was about a 2-in. gap, which was closed with an 8-in. wide strip of 14-ga sheet metal tacked to intersecting forms. This kept forms from binding and made it easier to remove forms undamaged for re-use.

• **System of positioning blocks** was developed for setting wall forms quickly in place. Outer forms for walls were provided with 2 x 8-in. positioning blocks at the top. These fit between the studs. Anchors attached to the blocks projected into the concrete wall. When the forms were stripped, the blocks remained in place. Then for the next lift, forms were set on top of the blocks, secured by short wales, and thus were able to be positioned quickly and easily.

• **Unconventional uses** found for equipment. A paint sprayer, normally a painter's tool, sprayed curing compound on exterior walls; pneumatic impact wrenches, primarily an automotive tool, tightened bolts on wales. Plastic hose, standard garden type, punctured at intervals, sprayed the concrete for curing.



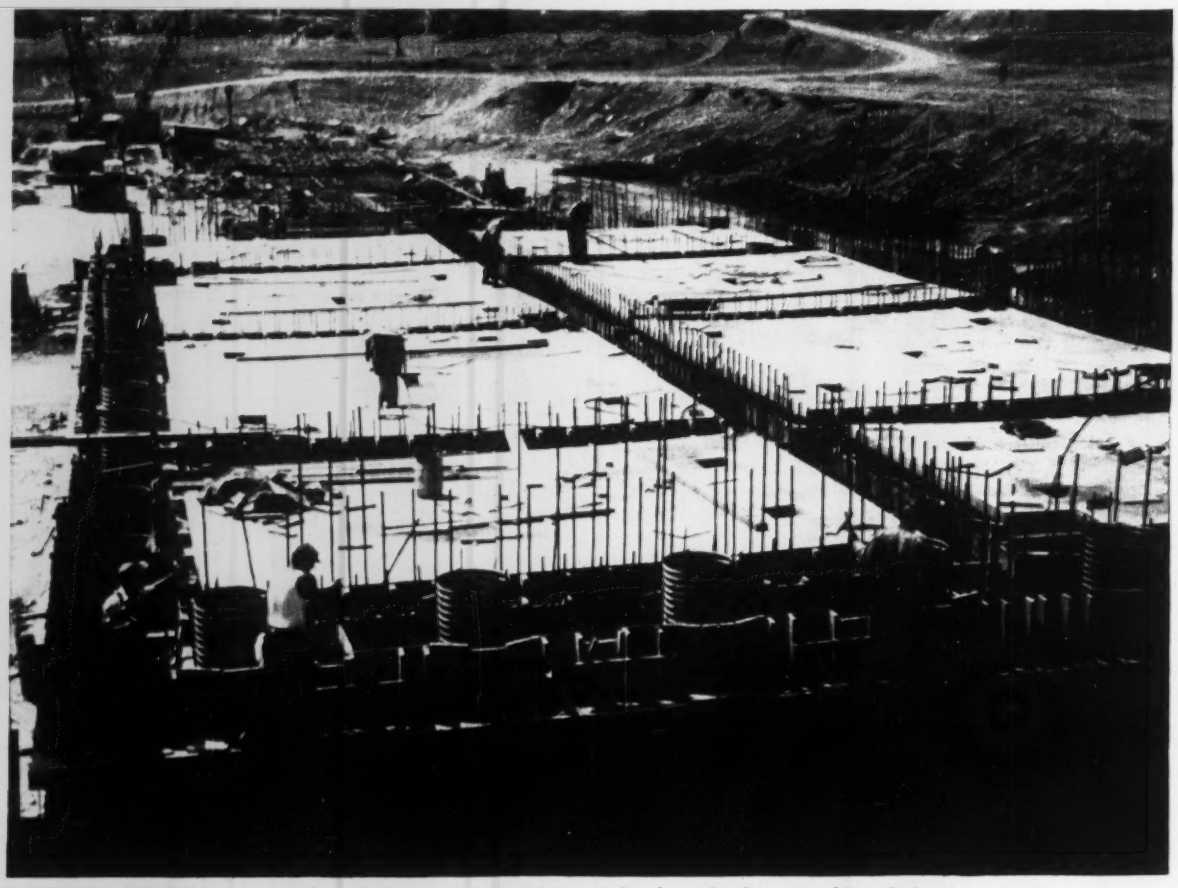
TRAVELING SCAFFOLD replaces fixed scaffolds and ladders to advantage.

straw, N. Y., where Pier 57's substructure boxes were built. An area 300 x 850 ft in the basin was used as a fabrication and casting yard. At the north end, wood forms were built. At the south end, covering about 300 x 300 ft, steel reinforcing mats were prefabricated. These were carried by crane or semi-trailer to the casting area and hoisted into place.

Constructed within 5 to 10 ft of final height, the eight buoyant boxes will be floated down the river to the bridge site. Work cannot be completed at Haverstraw because the boxes would draw too much water to pass through the river channel.

• **Casting bed retrieved**—Corbetta took over the Haverstraw site after the basin had been dewatered and after the river-edge dike had been filled in (where it had been breached to flood the basin and to provide egress for Pier 57 boxes). The old casting slab was covered by a layer of silt ranging from 2 in. to 1 ft thick—too thin to shovel out, too thick to pump.

To remove this material, the contractor took advantgae of the weather. He sent dozers and scrapers into the basin each morning, when the muck



PLYWOOD FORMS for intermediate deck previously had been used at lower levels as a working platform.

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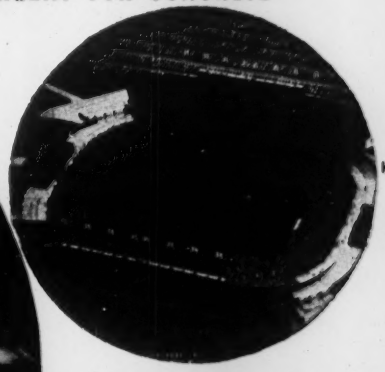

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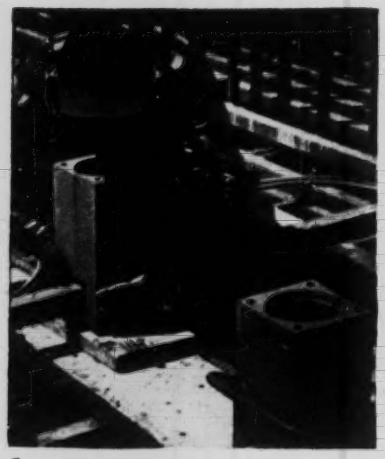
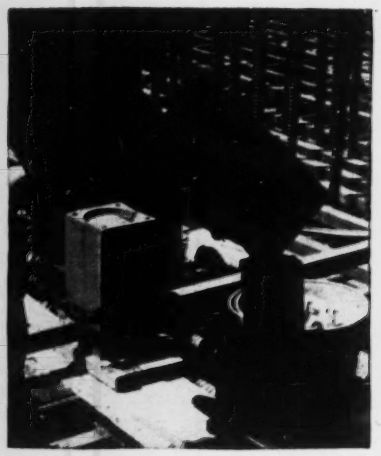
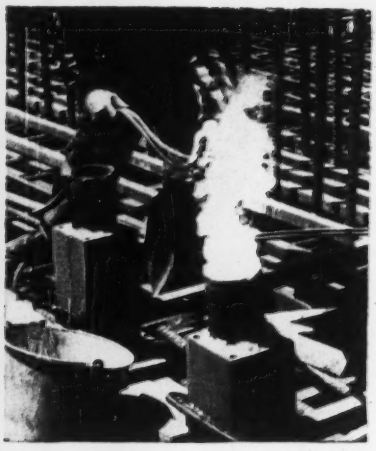


1 BUTT WELDING of 2-in. square bars started with placing of two-section mold around bar ends. Then . . .



2 THERMITE was placed in the mold. Short pipe increased capacity of the mold. Next . . .



3 IGNITED, the mixture melted a stopper and flowed onto the bar ends. That did the job . . .

was thickened by low night temperatures to be workable. In three weeks, this equipment cleaned up the basin, enabling work on the boxes to start.

Unusual design called for unusual construction methods. Some 32,000 cu yd of concrete needed careful batching, casting and curing to make the massive boxes watertight. Reinforcing steel, 4,000 tons of it, was welded into assemblies and placed ahead of the wood forms. Splicing of specially rolled 2-in. square reinforcing bars was accomplished by the Thermit process, a novel application of this welding method.

• **Reinforcing welded on jigs**—Bars were received in 60-ft lengths. After being cut to required sizes by rod cutters, bars were then bent by a powered bender.

Job-built jigs consisting of notched 2 x 2-in. steel angles attached to wood supports facilitated assembly of reinforcing into mats, or cages. After bars were arranged on the jig, welders arc-welded about one out of every five intersections. These were simple tack welds, adequate to hold the mat rigid until positioned in the box and the concrete poured.

When in place in the forms, mats overlapped so that they could be tack welded together. This resulted in reinforcing cages rigid enough so that no tie wires were required.

• **Thermit welds big bars**—Reinforcement for the base slab of each box consists of several layers of 1¼-in. around, and 2-in. square bars. Because of the large size of these bars and the close spacing, which was inadequate to permit bars to be spliced by lapping, the bars had to be spliced by welding. To avoid the necessity of bringing an expensive power system in, the contractor decided to butt weld these large bars by the Thermit process.

Bars were lined up with about ½-in. gap between the ends. At each splice, two halves of a baked-foundry-sand mold were clamped together, the lower part fitting around the bar ends. Openings in the mold were caulked.

Welding compound was poured into the upper, funnel-shaped part of the mold. For 1¼-in. bars, 5 lb. was used; for 2-in. bars, 8 lb. Starting thermite was put on top and ignited with a welding torch. A thin steel disk at the bottom of the funnel kept the burning thermite from flowing prematurely into the gap. When the thermite was hot enough, the disk melted, permitting molten thermite to fill the gap. Vertical holes in the mold permitted gases to escape. After cooling, the mold was removed and discarded.

In the first concrete pour for each box, the base and 11 in. of wall were cast together. The curb thus formed around the base slab enabled water to be ponded for curing purposes. After the curing period, pneumatic sump pumps removed the water.

Re-usable forms were prefabricated in large sections for the walls. They were made of ¾-in. fir plywood on 2 x 8-in. studs, 16 in. or less c-c. Wall forms ranged up to 12 ft in height and 34 ft in length.

• **Double-duty forms** — The bottom form for an 8-in. thick intermediate deck did double duty. It also was used as scaffolding for men working on wall reinforcing and forms. The stringers of the deck form were projected slightly beyond the plywood. When the form was used as scaffolding, these stringers rested on wall-form wales. As work progressed, this platform was moved up by a crane.

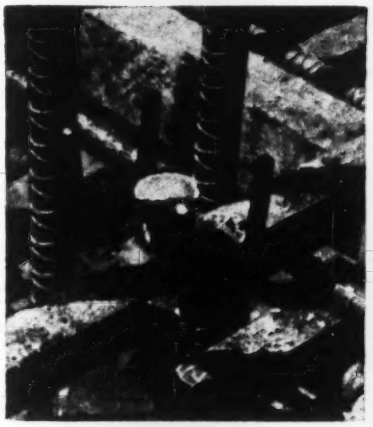
To serve as a form, the platform had to be smooth-surfaced. Consequently, there could be no projections into which the crane could hook. The contractor met this difficulty by leaving loose at each corner of the panel, a small area of plywood, which could be removed to expose a stringer. He was then able to string cables around the stringers to raise the platform.

When positioned as the form for the deck, the projecting stringers were cut off, the plywood then fitting properly inside the walls. After the deck slab was cast, the form was dismantled and taken out piece by piece through an access hole in the top of each compartment.

• **Set controlled**—Concrete for the boxes—a 1:2:3.5 mix—attained a minimum strength in 28 days of 5,000 psi, with 4% to 5% entrained air. It contains 30.7 gal of water, with 3 oz of a liquid air-entraining agent, and 6 bags of sulfate-resistant, low-heat-of-hydration cement (ASTM Type II) per cubic yard. [Since walls and base slab are about 2 ft thick, ordinary (Type I) cement might generate excessive heat when setting and cause cracks.] From ½ to 1 lb. of a plasticizing, set-retarding admixture was added with each bag of cement.

The concrete had a slump of 3 in. or less; without the admixture, the slump would have been no more than 2 in., making placing of the concrete very difficult.

The concrete batching plant, operated by Colonial Sand & Stone Co., was set up on the dike between the basin and the river. One section batched cement; the other, sand, gravel and water. Twelve truck mixers delivered the concrete to the casting



4 SLAG PROTRUDENCE marks weld location. The slag was removed with a hammer; the mold, discarded.

yard, where it was hoisted by crane and placed in the forms with the aid of vibrators. The retarding action of the admixture permitted the concrete to be vibrated again about one hour later, to remove water trapped under gravel and reinforcing steel. The result: a strong watertight structure

A system of high-pressure air pipes and water pipes was placed around all eight casting beds. Respectively, they supplied air for pneumatic equipment and water for washing down and curing the concrete.

• **Two curing techniques**—A plastic hose, punctured to emit a fine spray, was used for curing bases and decks. Spraying continued for seven days.

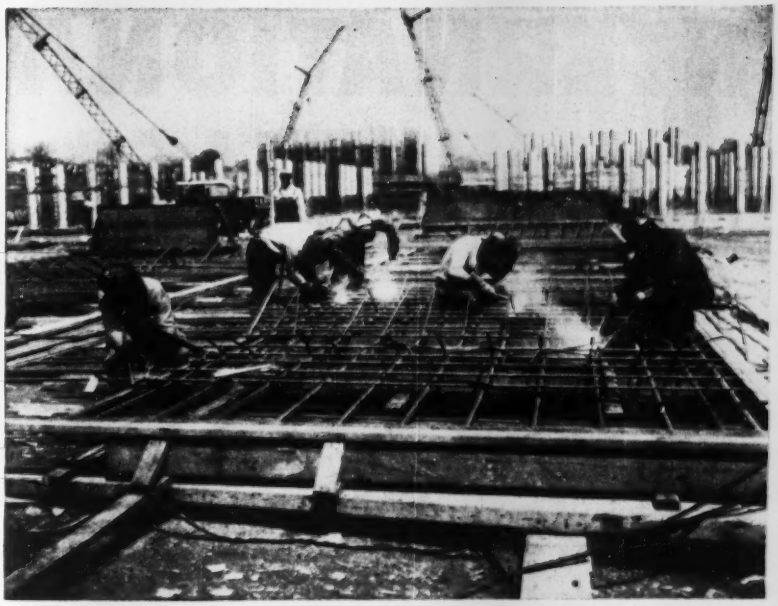
Wall forms were stripped after three days and the concrete hosed down. Then, walls were coated with a curing compound containing aluminum paste, which reflected light and heat from the sun.

Immediately after each pour, all construction joints were coated with a retarder. The next day, exposed surfaces were hosed with air and water to remove mortar and expose the aggregates to bond with the next pour.

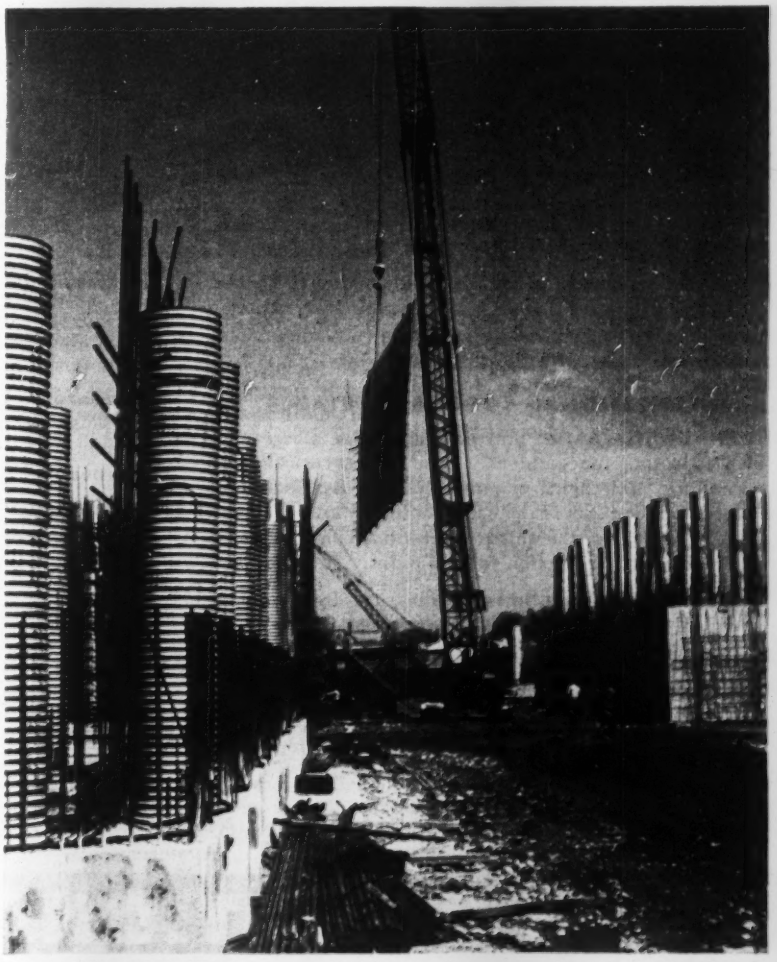
The Corbetta contract, amounting to $3,800,000, includes all substructure construction at the dry land site near Haverstraw. The boxes are being built for Merritt-Chapman & Scott, general contractor for foundation section of the easterly and deep water part of the Tappan Zee Bridge, which will float the boxes downstream.

Charles Prokop, vice-president, is in charge of the project for Corbetta. Olav Olsen is general superintendent; George Caneva, project engineer, and Walter Campana, general steel supt.

The bridge was designed by Emil H. Praeger of Madigan-Hyland, consulting engineers, N. Y. City. Cornelius R. Barrett is resident engineer.

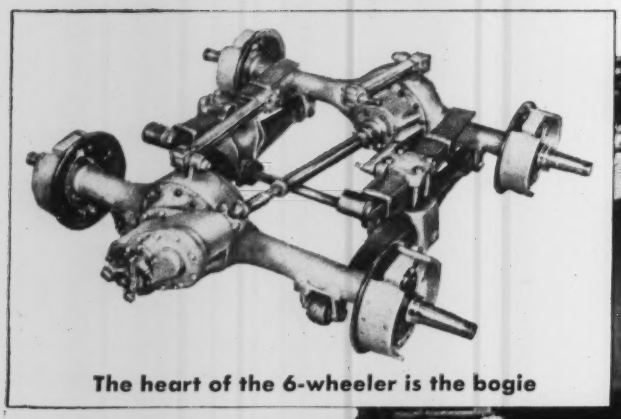


TACK WELDING tied reinforcing bars for the walls of the box foundations into mats, for speedy placement. Assembly of the bars was facilitated by a steel-angle jig, with notches for positioning the components.



REINFORCING MATS were erected with a crawler crane and tack welded to dowels.

INTERNATIONAL LEADS 6-WHEELER FIELD

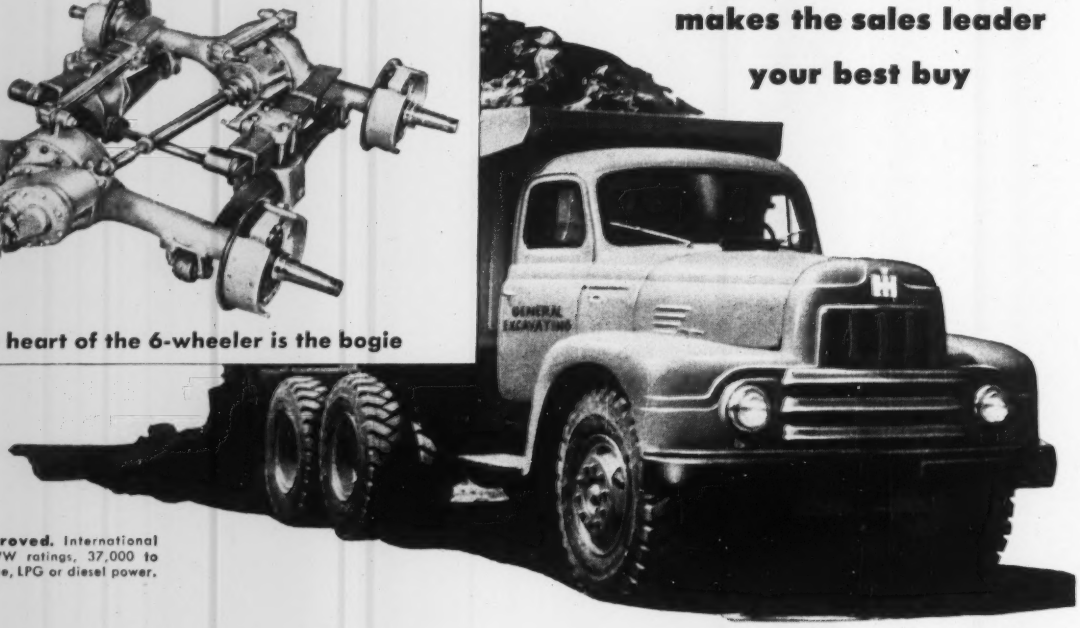


The heart of the 6-wheeler is the bogie

Proved performance

makes the sales leader

your best buy



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"Tough Job" engineering has made International Trucks the heavy-duty sales leader for 21 years. International 6-wheelers give you proved performance PLUS the famous International bogie with the third differential.

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Abnormal tire wear eliminated because International bogie design *always* keeps wheels parallel to frame.

Reduces road shock by 50%. "Walking action" design keeps chassis frame and body level while bogie "walks" over obstructions and levels out the road.

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Compare performance . . . value . . . and price. Get all the facts on International 6-wheelers—*proved* for top performance and greater operating economy—from your International Dealer or Branch today.

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Better roads mean a better America

INTERNATIONAL TRUCKS

Standard of the Highway

SAFETY: Job for the construction superintendent

RESPONSIBILITY for everything safety included—that takes place on the job lies with the superintendent.

J. B. Kovach
Safety Supervisor, Dravo Corp.
Pittsburgh, Pa.

Some time ago a construction superintendent said to me, "John, I've heard speeches on safety rules, safety procedures, safety devices, safety gadgets, preventive safety and corrective safety.

"Some speeches gave management's viewpoint and some explained the side of labor. They were long, short, loud or soft. Many were interesting and others less than interesting. But I have yet to hear a safety man get down to the unpleasant business of pinning the responsibility for preventing accidents on any individual or group."

To meet that challenge let's consider two important facts:

• The final responsibility for any job or task must rest on the shoulders of an individual.

• Accidents must be prevented right where they will or will not occur. There is only one type of employee in our operations who is directly and continuously on the job, and who traditionally carries responsibility. He is the superintendent, and here is why he must measure up to the task.

A superintendent is an important man. He cannot be a mediocre individual. He is selected, not for his ordinary qualifications, but for his extraordinary qualities. Also, he has a background and skill beyond that of the men he directs.

The application of this knowledge and skill depends upon his experience and judgment—it was, perhaps, his superior judgment more than any other quality that made him a superintendent.

The superintendent is chosen for his job not especially because he has a college degree, but for the man he is. Yet he is a professional man and the ethics of his profession or trade are demanding. He is a "doer"—an executive. As an executive, he takes the materials of his work, the tools of his trade, and the skills of his men and transforms them into the finished plans of his project.

The superintendent is not only the organizer and operator of the job he supervises; he is the direct representative of his company in the field. During the working day he is the pivot about which his job and men revolve. The success of his operation is a direct product of the application of his energy and ingenuity.

• **It's the men who count**—The principal "tools" of the superintendent are the men he directs. It is this close association with the men on the job that identifies him with the heaviest responsibility for their welfare.

Safety, to the superintendent, is a personal thing. The protection of his friends and fellow workmen from the hazards of their occupations is his intimate concern. Safety to him is not a statistical record of frequency rates and severity rates because the Joe, John and Tony on his job are not "statistics" to him. They are, one and all, the most important of men.

Safety thus becomes identified as an actual, all-important phase of the superintendent's work because, no other man on the job holds such a key position.

The men who direct the superintendent's efforts, all the way from his general superintendent up to the highest level of management, certainly and vigorously encourage and promote safety, but they are not on the field job or jobs continuously.

Much the same is true of the safety supervisor, whose whole job is devoted to safety. He is a salesman, promoter, teacher, investigator and instigator of safety; he is even an irritator. But he is not on any particular job continuously, and the prevention of accidents is an unrelenting task.

• **Who knows the job best?**—No one knows a job as the man who runs it does. No one is more thoroughly familiar with the risks and hazards involved. No rule book ever can be so comprehensive as a superintendent's knowledge of his work. No one is so constantly with the job; has the easy, day by day intimacy with it. No one is in a position to know the individual workman more thoroughly; his strengths, his weaknesses, his limits and capabilities, his working habits, his sense of cooperation, his reaction to authority, his physical capacity, the stability of his temper, his personal hopes and ambitions, his troubles and tribulations, his state of health and well-being.

The obligation is quite clear. The superintendent, the boss, must accomplish the bare fact of preventing accidents.

• **The good superintendent**—To execute the safety task, there are certain qualities the superintendent must have:

He must understand himself. He must be keenly aware of his own human shortcomings, for they will be reflected in the quality of his supervision. He must have the ability to view himself with humility and candor, for this is one great measure of his stature as a man.

He must have understanding and respect for his men. Recently, I saw in one of our customer's offices, a picture of a workman in a simple pose. Beneath were these words, "Men are square." I hold that this must be the conviction of any worthwhile supervisor.

The superintendent must learn to

MEN ON THE JOB are the superintendent's first concern; to him they are real people, not statistics for the safety record books.

CONTEMPT FOR DANGER comes easily to construction workers; the superintendent must learn to be afraid FOR his men.

take the long view of his men; not continually to nag and harass them for their shortcomings; but to explore and develop and exploit their finer traits and qualities. Safe habits and practices cannot be developed successfully in men by a process of continuous rebukes and criticism.

The superintendent must be understanding and informative. He will instill in his men the idea of safety much more effectively by active example than by precept. Certainly the superintendent cannot shirk the responsibility of his position. He must obtain discipline through his authority without hesitation, when necessary, but he must use those methods as a last resort, and then without rancor and with complete fairness.

The fact that disciplinary action is necessary occasionally is not a reflection on our men, but only a reflection of our very nature as Americans. It is a part of our native philosophy to resent and to resist authority. The superintendent who has not learned to expect and to cope with some resistance simply has his head in the sand, for he is dealing with men and not with mice.

The superintendent must understand that his men are not necessarily un-cooperative whenever they take what seem to be needless risks. It is only human nature to acquire a certain disregard for dangers to which one is frequently exposed, and with which one becomes familiar. It is the superintendent who must learn to be afraid for his men.

He must have an understanding of his job. He must be armed with a minute and detailed knowledge of the layout of his work, and of the equipment he uses. He must have the opportunity to learn and to keep on learning, the facts of safety.

He must have an attitude of social consciousness. He must place the welfare of others above his own desires or convenience. It is in the socially conscientious attitude of the good superintendent that we find the sustaining factor, the desire to provide for others, the desire which keeps his efforts consistent and continuous, in spite of the obstacles and disappointments which might tend to discourage him. In short, he must sincerely want to protect his men.

• **His human failings**—Being only human, superintendents are subject to the usual human weaknesses, and may I suggest a few.

• Reluctance to admit error and to accept responsibility for things that are going haywire. The superintendent must understand himself well enough not to allow himself to take refuge behind silly, self-exonerating excuses or petty accusations. He must learn to stop, to admit the error, to take advantage of the lesson he has learned, and to plot his course anew.

• The habit of telling an untruth or passing the buck: There is nothing that dulls the effectiveness of the supervisor more than the failure to act. As a matter of fact, the ability to make decisions and to take action upon those decisions, is one of the most important characteristics of the superintendent. As far as safety is concerned, where hazardous conditions exist, or dangerous practices are in progress, and men's lives and limbs are in jeopardy, the case calls for summary action. An accident always occurs in the present, right now. Nothing exists away out there in the nebulous "tomorrow." These things are with us in the minute by minute existence of today. A man must learn to take the bull by the horns and act.

• Impatience: Nothing frustrates the endeavor for good, safe operations more devastatingly than hasty and faulty judgment. More serious accidents seem to result from poor planning or the entire lack of planning than from any other cause. Moreover, the superintendent cannot afford impatience in dealing with his men. If he expects them to have a sure understanding of the job, he must prepare to give his deliberate and unhurried attention.

There is your superintendent and his place in safety.

Safety ideas to halt construction job fires

Fires taking place daily in construction are preventable and controllable—but this takes some preplanning on the part of industry. This warning was voiced at one of the recent technical sessions of the three-day Chicago Safety Conference and Exposition.

The speaker was John J. Ahern, director of the department of fire prevention and safety engineering at Illinois Institute of Technology, and president of the Greater Chicago Safety Council.

These are Ahern's suggestions for avoiding fires during construction:

• Clean up daily debris of scrap lumber, paper cement sacks, etc.

• Install hydrants and water lines at the start of the job; provide access roads for the use of heavy fire-fighting equipment.

• Carry up standpipe construction floor-to-floor along with the building.

• Keep an ample supply of portable hand-pump water tanks.

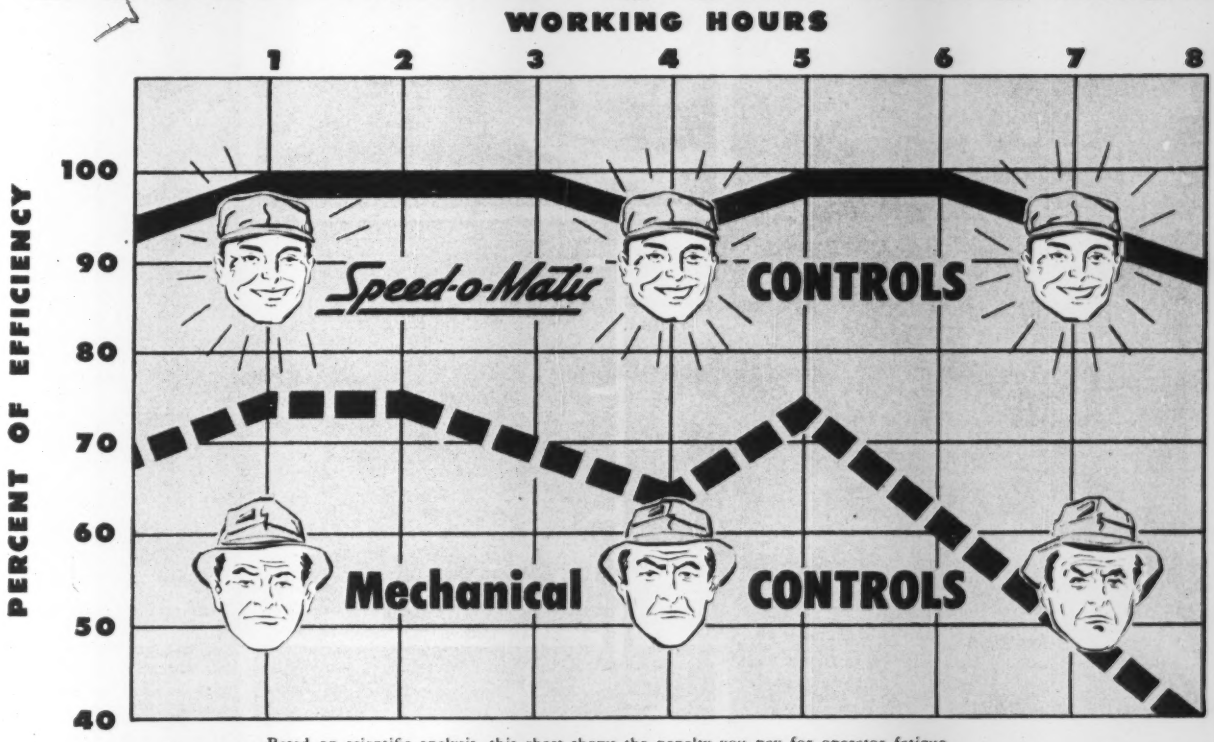
• Use wood forms and tarpaulins that have received fire retardant treatment.

• Insist on vigilant watchman service, with dependable phone connection to the fire department.

• Avoid use of makeshift salamanders for heating in cold weather.

Before you buy:

COMPARE CONTROLS!



Based on scientific analysis, this chart shows the penalty you pay for operator fatigue when your machines have manual controls as compared to Speed-o-Matic controls.

Link-Belt Speeders with *Speed-o-Matic* controls boost your production up to 25%

THE exclusive Link-Belt Speeder power hydraulic control system provides instant, smooth response for faster working cycles. Finger-tip-operated, Speed-o-Matic controls permit the operator to feel the load at all times for fast, safe, accurate, smooth operation. There's no jerk, jump, or lag. And . . . because Speed-o-Matic is so easy on the operator . . . costly end-of-the-shift letdowns are eliminated.

This system's simplicity and freedom from mechanical linkage cuts overall maintenance and minimizes the need for clutch adjustment. Some Link-Belt Speeder owners report using these outstanding rigs for months without a clutch adjustment.

For details on the Link-Belt Speeder line of crawler, truck and wheel-mounted models, write for catalog 2373.

LINK-BELT SPEEDER CORPORATION
Cedar Rapids, Iowa

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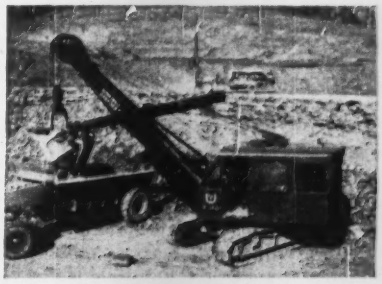

Digging blasted rock like this can be a "rig-and-man-killer." But on this 1½ yard Link-Belt Speeder K-360 with Speed-o-Matic controls, fingers do the work instead of muscles and digging shock on machine components is minimized.

LINK-BELT SPEEDER
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BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

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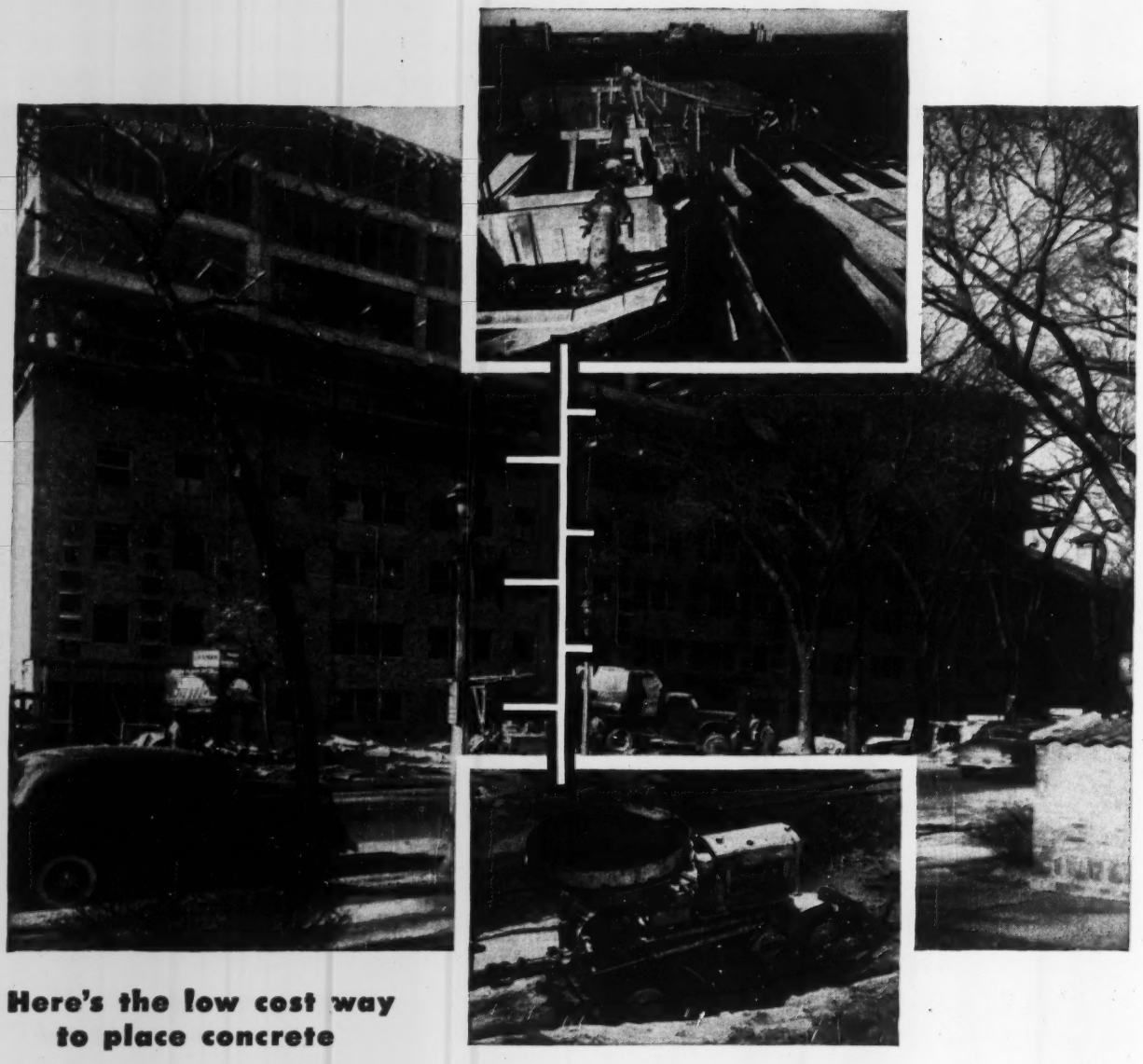

Here's the low cost way to place concrete

eight stories up!

Here's how Rex Pumpcrete® helps slash the cost of concrete placement on this modern apartment building. Pumpcrete is placed in convenient location outside the building where it can be charged easily by a Rex Moto-Mixer®. Pipe line is extended up inside the building floor by floor as pouring is completed. Upper view shows pouring in progress on the top floor. Thus no expensive towers are needed...no buggying...no interference with other crews...costs are cut all along the line.

Rex Pumpcrete—concrete by pipe line—has proved to be the lowest cost method of concrete placement in hundreds of different applications. Apartment building construction is just one example. Others include hospitals, schools, public buildings of all kinds, tunnels, bridges, viaducts, dams, factories and many more.

Get all the details on the Pumpcrete method and how it can help you cut costs on your next job. Write today for Bulletin 53-36, Chain Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wis.

CHAIN BELT REX COMPANY ® CONSTRUCTION MACHINERY

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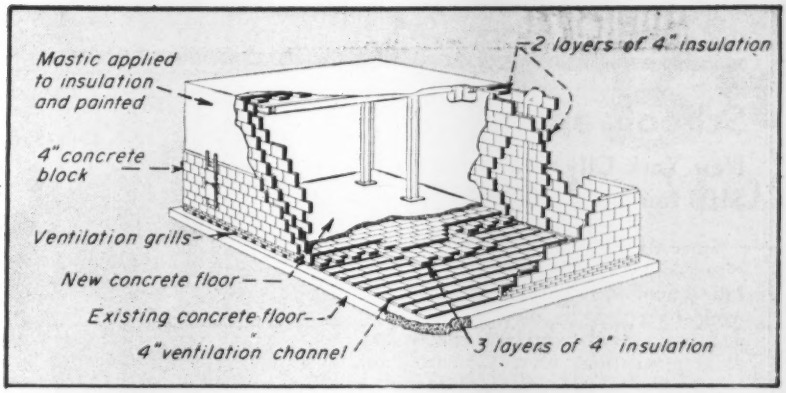


FREEZER ROOM in ice cream plant is completely enclosed with insulation block.

Columns bear on floor insulation

An insulating block capable of sustaining column loads made possible the construction of a thermally isolated freezer room at the Luick Ice plant in Milwaukee, Wis. The freezer maintains a constant temperature of −20 F.

Since the construction of a freezer as an extension of the existing plant proved too expensive, the room was built on top of the existing floor inside the plant itself. This construction involved erecting the room around a number of columns.

The insulated floor of the freezer room extends under new footings built for these columns to prevent a thermal short circuit in the freezer room. A cellular-glass insulation block (Foamglas, made by Pittsburgh Corning Corp.) was used to support the column load. If the columns in the freezer extended through the insulated floor, the relative heat outside the freezer could be conducted into the extremely cold freezer room and increase the cost of refrigeration. Columns extending through the freezer floor might also cause frost heave under existing plant floor slab and damage the freezer room.

• **Construction method**—Roof beams were first shored up with heavy timbers. The columns were then cut with a torch near their bases, at a point where bearing plates welded to the new column base would rest on a concrete slab placed over three layers of insulation block. Thus, the insulation block, placed on the existing plant floor, supports the column load and makes possible the thermal isolation of the freezer room at the floor.

With the roof beams shored up and the new column footings clear of the existing floor, a 7-ft square layer of 2-in. insulation block was laid down, under the columns, with hot mopped asphalt on the plant floor slab.

This first layer of insulation was laid in strips 18 in. wide, with a 4-in. open space between strips. The open 4-in. channels allow warm air to circulate against the concrete floor so that the extremely cold temperature inside the freezer cannot cause a frost heave in the ground below the existing slab.

(When freezer rooms are built on or below grade, common practice calls for a floor excavation and the installation of ventilated space to prevent frost heave beneath the freezer. The ventilation channels formed by the insulation block in this case eliminated an expensive excavation and ventilation installation beneath the plant's existing floor slab.)

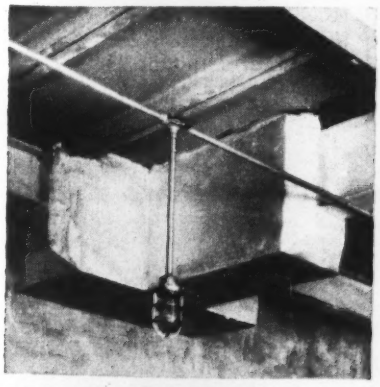
On top of the bottom layer of 2-in. Foamglas, two layers of 4-in. thick insulation block were laid.

A reinforced concrete floor slab was then placed on top of the insulation to a height reaching the under side of the shortened columns' bearing plates. When the concrete set, the timber shores supporting the roof beams were removed, the column load being transferred to the new freezer floor, and the rest of the new freezer floor was placed in the same manner.

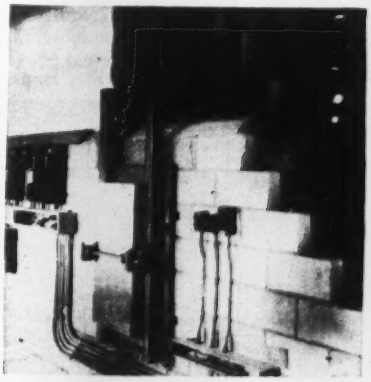
• **Freezer walls**—The walls of the freezer room were laid up with two thicknesses of 4-in. Foamglas, covered with a waterproof cold mastic and painted. The lower portion of the outside wall was covered with 4-in. concrete block to permit the installation of utilities and to protect the walls.

At the roof, an 8-in. slot—all around the perimeter of the freezer room—was cut through the precast concrete roof deck slabs to let the insulated walls extend through the roof deck. The bituminous roofing was removed and two layers of a 4-in. thick insulating block laid down to tie in with the freezer-room walls, built up to meet this roof covering. The 8-in. insulation on the roof deck was then covered with builtup bituminous roofing.

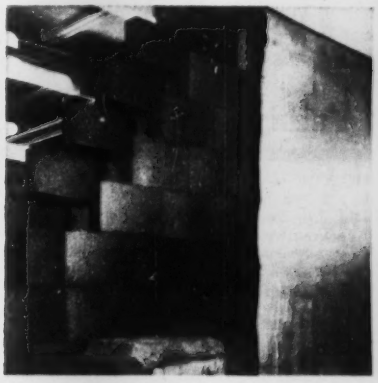
The Dahlman Construction Co. of Milwaukee was the general contractor for the job and the insulation contractor was Sprinkman Sons Co., also of Milwaukee.



INSULATED BEAMS at edge of freezer room prevent frost accumulation outside of room.

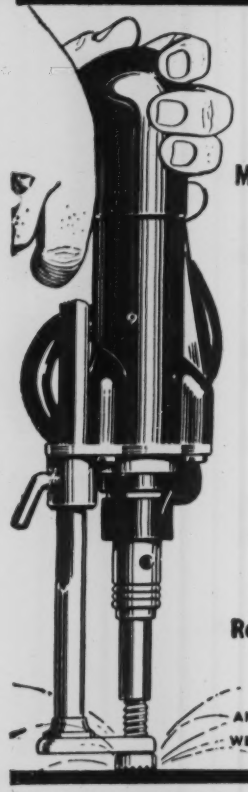


OUTSIDE WALL of freezer is protected from any injury by concrete block on which operating equipment is placed.



INSULATING BLOCK walls are laid up with hot asphalt, covered with mastic and then painted.

FASTEN IT BETTER AT LESS COST WITH NELWELD*



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DIVISION OF GREGORY INDUSTRIES, INC. LORAIN OHIO

Schools aplenty

New York City would add $100 million worth in '54

Since the end of the last world war, New York City has geen busy buildinb schools—69 finished and 72 in work—to replace its ancient structures and to keep up with the growth in child population. Over $250 million has been spent.

Now the Board of Education is ready to pay $100 million for 30 new projects, to be started in 1954, which will boost enrollment capacity of the city's schools by 34,000 students.

Only eight junior and two senior high schools are in the plan. The rest will be elementary schools. The board, following a population bulge through school, will be asking for a half dozen high schools in 1955 or 1956.

A borough breakdown shows 11 of the projects planned for Queens, nine for Brooklyn, five for the Bronx, four for Manhattan and four for Richmond. Conversions, additions and modernization under the program will accommodate 2,650 students, it is claimed.

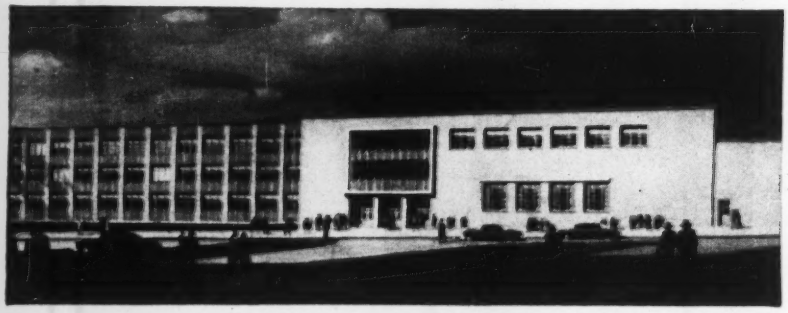
Standardized construction to meet standardized needs saves money. This is the reasoning of Michael Radoslovich, chief architect of the school system's Bureau of Construction, and William Correale, the bureau's new director. So they've worked out a method of building block units which they hope will be used in their 1954 program.

Idea is to make a school by combining units to fit the site or to conform to special needs of the school. Units would be standard, varying only in their placement in the total structure. For example, gymnasia would be alike; so would units combining offices and play-lunch rooms. Classrooms sections, all alike, would be layercaked to a maximum height of three stories.

ON THE WAY OUT—Factory-style schools are giving way in New York.

Of the $100 million planned for 1954, representing a record appropriation by the city for school construction and modernization, $20 million will be allocated for modernization and improvement of existing buildings, and $10 million will be spent for acquisition of land.

The program, designed to meet the immediate needs of the school system, led Andrew G. Clauson, Jr., president of the school board, to express hope that "our budget requests will be honored in their entirety by the city's fiscal authorities."



ON THE WAY IN—Typical of city's new schools, this was designed by New York school system's Bureau of Construction.

Zoning lags?

Pittsburgh law blocks housing, FHA man says

Pittsburgh's zoning regulations are driving thousands of residents into distant suburbs, depriving the city of taxes, and complicating the staggering traffic problem. This is the view of Oakley W. Heselbarth, district director of Federal Housing Administration.

Stiff zoning requirements which limit the height of apartment houses have cost the city at least six multi-million-dollar projects in the past five years, he declares. They would have provided 200 dwelling units, housed more than 6,000 persons, and cost more than $26 million.

Men who put their money into apartment buildings believe that the buildings must be 8 to 12 stories high to be financially worthwhile. But land space restrictions in Pittsburgh ban apartments of that size. Many apartment projects have drifted to suburbs where regulations have been relaxed. For example, one borough in Allegheny County recently offered to do anything necessary to land a big FHA project.

But a number of builders—and the FHA—prefer city locations. They know that convenience is an important factor and that when large apartments are located near established facilities, the projects are more likely to return profits.

• **Two exceptions**—There are two shining Pittsburgh exceptions to restrictions which set precedents when they opened last year. They are the 500-unit Carlton House (recently changed into a hotel) and the 440 unit Bigelow Apartments, both located in downtown Pittsburgh on the fringe of the financial and shopping section.

But it required special city ordinances to break the ice for these two projects.

Heselbarth believes the similar developments of this type could be obtained for downtown Pittsburgh and for nearby areas if zoning regulations permitted. He says 1,500 dwelling units would have been built in the Oakland section of Pittsburgh alone if the sponsors had been permitted to build structures 12 stories high. It would have made possible more central living for some 5,000 persons and the city would have gained about $360,000 a year in taxes.

These projects, says Heselbarth, all

Briefs from the YEOMANS GUARD

Installed in 1903—and still pumping smoother

These amazing "old-timers" never fail to give us a terrific surge of pride.

Here's one—in the LaSalle Street Station, Chicago, installed when the station was built in 1903: a Yeomans Form "A" Duplex Ejector for handling sewage, and the drainage from janitors' sinks and the boiler room.

The pumps are vertical centrifugals, top-suction type, set in a dry pit with the receiver between them.

Only repairs were replacement of sleeve bearings on the pumps turning of the commutator on one of the old style slow-speed direct current motors and an occasional brush renewal.

Still pumping!

Four Aero-Filters Purify Domestic and Industrial Wastes at Rochester, Minn.

That standard type units lend themselves to special combinations for off-standard needs is well demonstrated by the sewage treatment plant at Rochester, Minnesota.

A strong probability that wastes from milk-processing plants, present in the sewage, would quickly become septic made it necessary to short-cut standard purifying procedure in order to hasten oxidation. For that reason basic treatment by rotary screens instead of conventional settling tanks delivers the sewage in the shortest possible time to four Yeomans high capacity Aero-Filters.

By this means oxidative purification is started much sooner, and the filter's work is made much easier.

With a complete line of standard units of every type—activated sludge process or high-capacity trickling filters—Yeomans engineers can assist in designing a plant custom-fitted to meet special requirements: a unique advantage.

Good business—consult Yeomans.

A Close-Coupled Centrifugal Pump with Mechanical Seal— the NEW YEOMANS MOTOPUMP

Good news—if your interest lies in the building field or industrial applications

- The new Yeomans Motopump—close coupled centrifugal heavy duty pump with mechanical seal

This small pump of large and varied usefulness is built to stand up in rugged service, and is adaptable to any usual pumping duties.

Three Models: Cast iron, cast iron with bronze fittings, and all bronze.

☐ Please send Bulletin 1120.

The Yeomans Guard, published several times a year, is a compendium of news and useful information covering the pumping of materials and the treatment of wastes, both domestic and industrial. We shall be pleased to send you the current issue if you'd care to have it. Ask your local Yeomans Representative—listed in the telephone book yellow pages under "Pumps"—or write direct.

YEOMANS BROTHERS COMPANY
1999-1 N. RUBY STREET, MELROSE PARK, ILLINOIS

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SCARS AND GOUGES from ordinary steel vibrator heads result in blemished concrete and costly repairs before forms can be reused.

RUBBER TIPPED VIBRATORS do not mar forms any more than ordinary pencil eraser. Result is smoother finish and much longer form life.

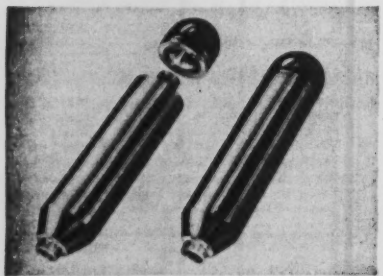
Extend Life of Costly Forms Indefinitely by Using Rubber Tipped Vibrators

Viber's replaceable rubber tips will not gouge plywood or other expensive form materials (which can cut cleanup time up to 100%).

To cut costs progressive contractors plan their jobs for repeated use of costly plywood or other formwork. Accidental contact by ordinary steel vibrator heads can damage these forms so they must be patched or even scrapped. A damaged form also makes an imperfect finished surface, requiring expensive hand rubbing if appearance is at all important to the job.

Viber's replaceable rubber tip prevents such damage and extends indefinitely the life of these expensive forms. Made of high grade rubber tougher than the best truck tires, it will not damage any of the common form materials, including plaster of paris inserts for architectural concrete. This means important savings for the user through longer form life and less cleanup time.

These replaceable rubber tips are an exclusive patented development of VIBER COMPANY, another example of the progressive design and planning that keep VIBER a leader in the field of vibration. For information on VIBER'S complete line of internal and external vibrators, write your authorized dealer or VIBER COMPANY, 726 So. Flower Street, Burbank, California. Dept. 53



EASY REPLACEABILITY by screwing tip on end of sealed housing where most wear occurs extends housing life two to four times. Tip is made of tough live rubber vulcanized on machined steel base.

MUNICIPAL

met approval of the FHA; banks and other investment houses were ready to finance them, but the city zoning board and the planning commission prevented construction by refusing to grant final permission.

Pittsburgh's zoning law was enacted in 1923 and has been amended only two or three times. The city planning commission is working on a revision of the zoning act but refuses to say when it will finish the job.

In reply to Heselbarth's statements, Frederick Bigger, chairman of Pittsburgh's planning commission, says, "We are disturbed by the inference that the drift to suburban areas has been caused by the city zoning laws. Such a drift is occurring in all cities, and the problem is not just one peculiar to Pittsburgh alone."

It is unreasonable, says Bigger, to expect that a city, built up as Pittsburgh is, will ever have internal growth such as is taking place in the suburban areas. "Those folks who move to the suburban areas do so primarily and often solely because they wish that atmosphere."

• **Proposal-zoning conflict**—Bigger says that during the last 5 or 6 years, inquiries have come to the commission regarding erection of apartment buildings in five different areas in the city. "All of the proposals have been completely in conflict with the zoning in the area. In some cases, in the commission's opinion, they would have had a bad effect on the particular blocks adjacent to the project."

None of these projects, Bigger declares has been explored by the promoter—with the commission—beyond the inquiry stage. "In some cases, excessive heights have been asked for the proposed structures. The commission is willing at all times to assist in having apartment buildings constructed inside the corporate limits of Pittsburgh when such buildings are designed to provide adequate housing conditions and the height limitations are in keeping with the rest of the area."

The need for more housing in the county is undisputed. Various governmental sources estimate the number of needed dwelling units at 24,000. That can be broken down into 15,000 single family and 9,600 rental units.

Since the end of World War II, about 25% of the 8,700 new apartment units have been built outside Pittsburgh because of zoning restrictions. About 80% of new residential construction has been in outlying municipalities.

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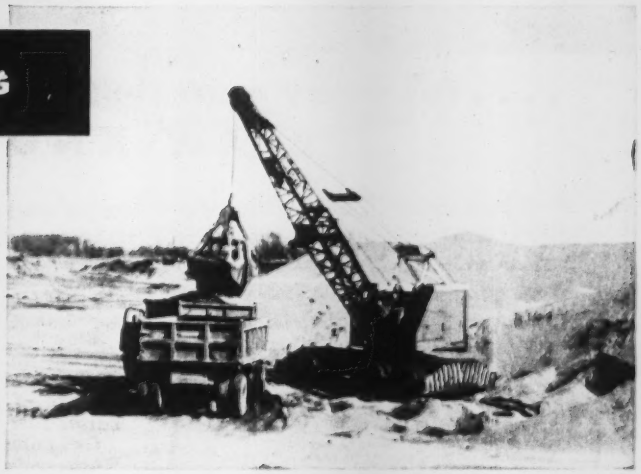

write for this catalog

This free catalog #3745-B describing the ¾-yard BAY CITY Shovel is packed with valuable information, pictures of parts and assemblies, and typical applications . . . yours for the asking. For complete information about the self-propelled 25-ton CraneWagon for use as Crane, Clamshell or Dragline, ask for Bulletin 190CW-C.

221

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47

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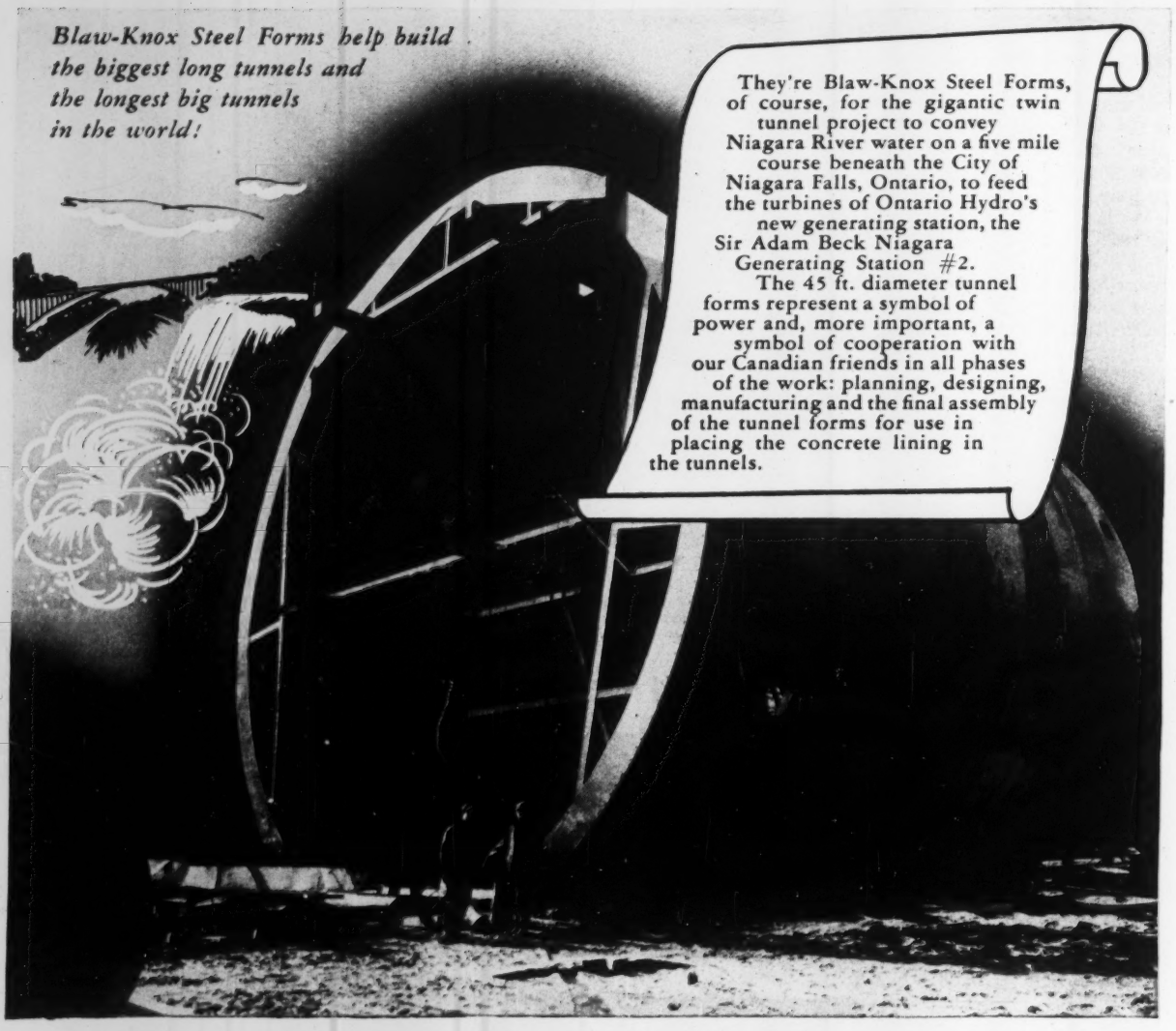

They're Blaw-Knox Steel Forms, of course, for the gigantic twin tunnel project to convey Niagara River water on a five mile course beneath the City of Niagara Falls, Ontario, to feed the turbines of Ontario Hydro's new generating station, the Sir Adam Beck Niagara Generating Station #2.

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Old bugaboo back to disturb river folk

A long standing fear—possible Mississippi River diversion—was revived in Baton Rouge during a recent all-day conference of south Louisiana leaders.

Apprehension stems from the belief that the lower Mississippi might abandon its course through the ever-lengthening delta at New Orleans in favor of a shorter run to the Gulf down the Atchafalaya Basin.

The more than 200 representatives attending the meeting asked New Orleans Chamber of Commerce as a flood prevention measure to help speed up congressional action on an estimated $50 million worth of control units. These units, the citizens claim, will prevent the river from eventually bypassing New Orleans and Baton Rouge, which might cause "economic dislocation of southern Louisiana."

Municipal briefs . . .

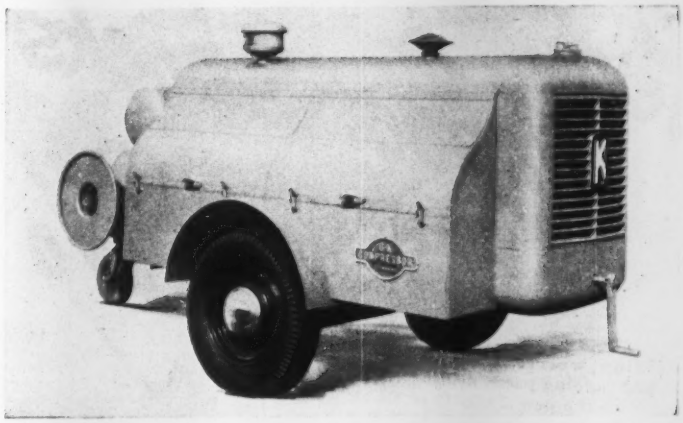
• **Chicago question**—Chicago may have a new convention hall near The Loop to capture business now by-passing the city because of inadequate facilities. The Illinois legislature has approved—and Gov. William G. Stratton has agreed to sign—two bills paving the way for the project. Estimated cost: $40 million.

• **Rainmaking reward**—Reporting to Dallas officials, scientific rainmaker Dr. Irving P. Krick summed up his six-month cloud-seeding operations for the city: A 363% increase in water supply of the principal municipal reservoir. Dr. Krick heads the Denver firm of Water Resources Development Corp.

• **Funds for water**—Oklahoma City voters have a chance to alter the recent water conservation laws passed by councilmen. Awaiting approval is a $2-million bond issue for 80 shallow wells in the river bed below Lake Overholser reservoir. Engineers estimate that the wells will produce 3-million gpd—an emergency measure until upriver rains return water to the reservoirs.

• **A self-contained town** to house and serve 5,000 people is being planned on a 558-acre site near the new Ford Motor Co. of Canada plant at Oakville, Ont. The town will contain 1,200 low-cost homes, 40 light industries, apartments and a shopping center. This town and a nearby 98-acre site, for which 336 steel-frame homes are

O K FOR TOUGH JOBS



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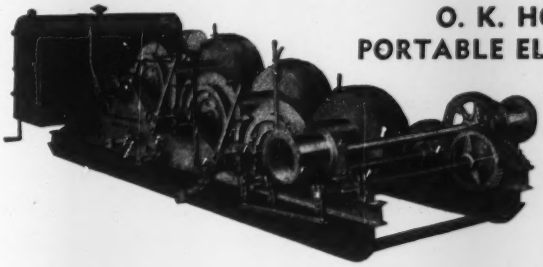
O. K. Air Compressors bear the stamp of approval of contractors who have used them for years and found them dependable, service-free, durable. O. K. Compressors are built for rough, tough service in four sizes—60, 105, 160 and 210 cu. ft. of air per minute. O. K. Compressors are either gasoline or diesel engine powered and are built in one and two-stage types.



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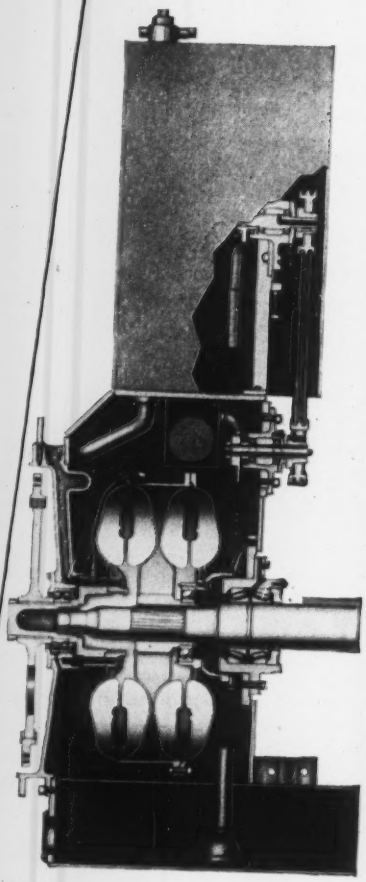
Doubling wear life on chains, clutches and running parts, drilling rigs equipped with the new Twin Disc Disconnecting Hydraulic Power Take-Offs have been running up outstanding service records during the past two years. Many rigs now drill deeper, more economically, because the new Twin Disc Model HUD allows the *full use of peak engine torque* . . . dampens starting shocks, stopping shocks and overloads. Through the complete Disconnect feature, the HUD acts as a master clutch.

Steady power transmission through Twin Disc HUD softens and controls speeds of acceleration and deceleration . . . to reduce impact shock—on power units *and* driven equipment—by 70% or more. Compounded drives can easily be synchronized—drum clutches can safely be engaged with engines idling, for smoother load pick-up—the range of available mud pump speeds and pressures can be greatly extended. Rig engines, free to run at their most efficient rpm, *prevented* from lugging or stalling under load, are assured of a longer, more serviceable, trouble-free life.

For complete information on how Twin Disc Disconnecting Hydraulic Power Take-Offs are adding efficiency to modern drilling rigs, contact your nearest Twin Disc Factory Branch, or write to the Hydraulic Division, Rockford, Ill.



Twin Disc Model HUD Disconnecting Hydraulic Power Take-Off—available in coupling sizes 21" and 27"; to handle 60 to 600 hp engines . . . operates with either cooling radiator or heat exchanger . . . incorporates shortened oil sump to fit rig design.

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being imported from England, will accommodate the families of plant workers.

• **New building code**—The North Carolina State Building Code Committee has adopted a new building code which will make it possible for modern materials, designs, methods and procedures to be used in the state. The regulation goes into effect on Sept. 1.

• **More shopping space**—A recent $5-million long term loan to Froedtert Enterprises, Inc., will be used to double the Milwaukee, Wis., Southgate shopping center. The money, obtained from Northwestern Mutual Life Insurance Co., is earmarked for construction of a Gimbels department store at the north end of the center, plus erection of a number of additional south end stores.

• **Ohio paving test**—Because of its heavy traffic flow, a three-block strip of Ludlow Street in downtown Dayton will be the setting for the city's first test with rubberized asphalt paving. This natural rubber powder mixed with asphalt, used only on the surface coat, will be 1½ in. thick.

• **Traffic solution**—Waynesboro, Va., voters have approved a $350,000 bond issue to finance the city's share of the work of getting heavy U. S. Route 250 traffic off the main business street. The by-pass project—which proposes an alternate route one block north of the present artery—will require extensive road work and a new bridge. The moving of a number of houses will also be involved in the project.

• **Sewer protection plan**—Regulation of refrigeration unit water runoff has been tightened at Phoenix, Ariz., to relieve an overload on storm sewer systems. All new refrigeration units must be equipped with cooling towers, evaporative condensers or other methods of re-using water. The measure was prompted by conditions last summer when sewers were congested.

• **Richmond road program**—Four urban aid highway projects are first on the slate in a new streets improvement program initiated by Richmond, Va. State and federal aid money was originally accumulated to finance an expressway—but this construction was twice voted down at the polls. Rather than lose the available funds, the city planning commisison recommended that Richmond proceed with surface street improvements.

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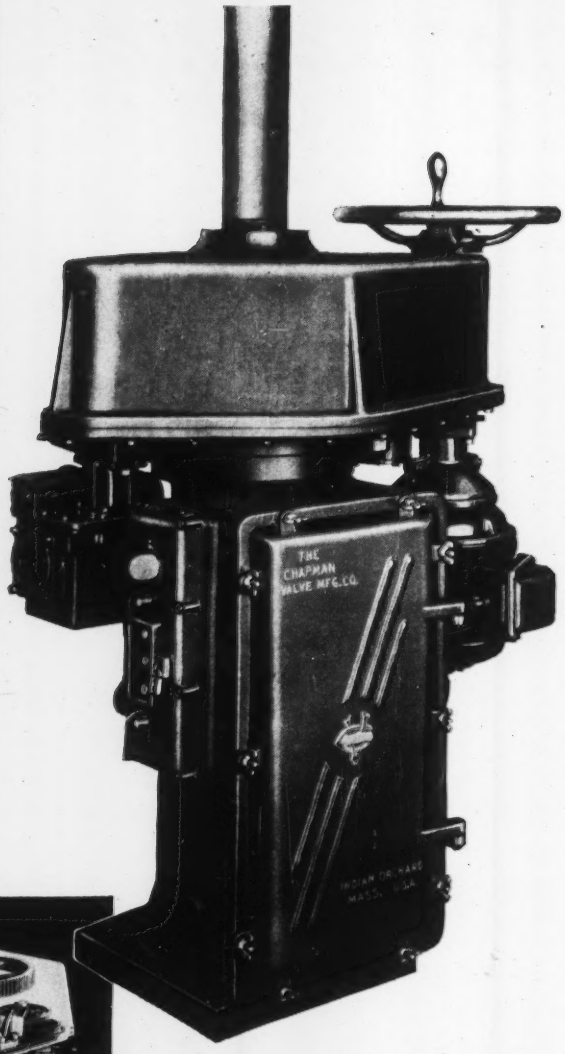
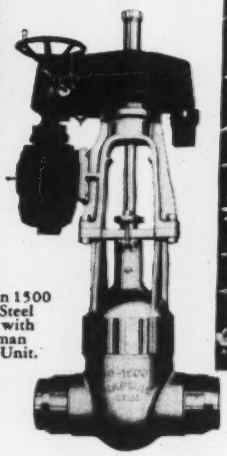


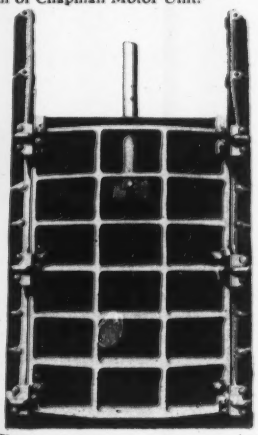
Above, Floorstand equipped with Chapman Motor Unit, Control Panel, Motor, Limit Switch and Push Button Station all completely wired. At left, Interior Mechanism of Chapman Motor Unit.

For positive control of large valves and sluice gates, the Chapman Motor Unit can safely be given your "power of attorney." The floorstands with Chapman Motor Units come to you with all wiring *complete*, so that all you have to do is bring the power leads into the connection box... which speeds up installation, insures proper operation, and saves wiring costs.

The Chapman Motor Unit is completely housed and thoroughly weatherproof. And the unit itself has the ruggedness of simplicity, with a slow-speed motor driving direct through two trains of spur gears. So there's no drift. The limit switch can be adjusted so the gate or valve closes to the exact seating position. Hand-operated, too, if the need arises. See what this modern electrically driven Motor Unit can do — *and save* — for you. Write for Catalog No. 50.



Chapman 1500 Series Steel Valve, with Chapman Motor Unit.



Chapman Standard Sluice Gate, with stem connection for Chapman Motor Operated Floorstand.

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INTERNATIONAL

Inter-American Highway to be passable in 2 years

Recent construction plans have given rise to the hope that the 18-year-old dream of an Inter-American highway is near to complete reality. (ENR June 10, 1943, p. 5.)

Gaps in the inter-continental highway could be closed within two years, according to Romulo O'Farrill, finance committee chairman for the Pan American Highway Congress, now holding an interim meeting in Washington. O'Farrill, however, acknowledges that it will be many more years before a completely hard-surfaced highway is finished.

Here is a round-up report on the highway—country by country:

• **Mexico**—A completed, well-maintained highway runs from the Texas to Guatemalan borders for a distance of 1,606 miles.

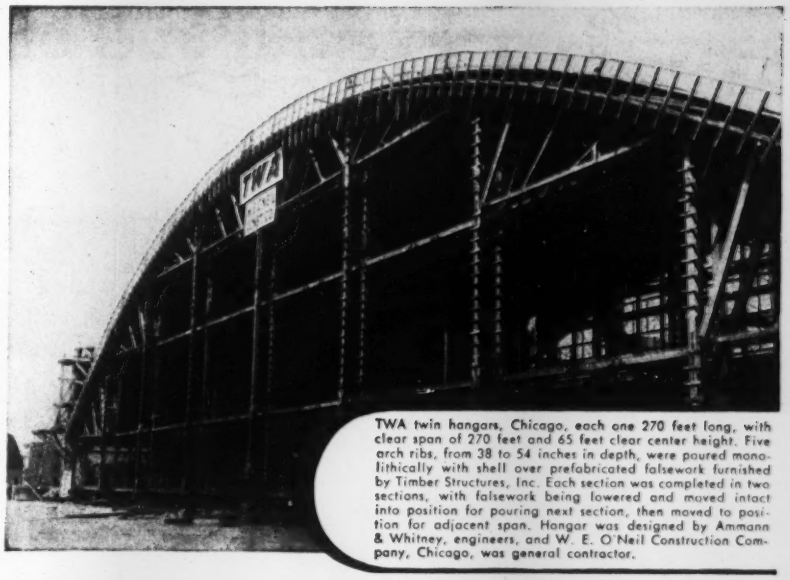
• **Guatemala**—The highway is impassable from the Mexican border to the village of Cuileo—but estimates put a 1955 completion date on the break-through. From Cuileo to El Salvador's border (via Guatemala City) the highway is passable in all-weathers, with some 60 miles paved.

• **El Salvador**—The highway is completely paved from the Guatemalan border to the town of San Miguel. The short section between San Miguel and the Honduran border is an all-weather road and will be completely paved by 1954.

• **Honduras**—This country has attempted to re-route the highway in order to have it pass through its capital city, Tegucigalpa. The U. S. Bureau of Roads has not approved this change; as a result, Honduras has not accepted U. S. financial aid. However, the highway from El Salvador's border to the border of Nicaragua is classified as "all-weather" and passable year-around. Several new bridges have replaced those built by the U. S. Army during the last war.

• **Nicaragua**—Construction work is in high gear. The highway is passable at present from the Nicaragua-Honduras border to the town of Esteli. Widening and paving work is in progress all the way from the border to Sebica. From there to the capital city of Managua—about 62 miles—the highway is fully paved. From Managua to the Costa Rican border, some 64 miles are paved; the rest is an all-weather road.

• **Costa Rica**—From the Nicaraguan border to the town of Liberia, the



TWA twin hangars, Chicago, each one 270 feet long, with clear span of 270 feet and 65 feet clear center height. Five arch ribs, from 38 to 54 inches in depth, were poured monolithically with shell over prefabricated falsework furnished by Timber Structures, Inc. Each section was completed in two sections, with falsework being lowered and moved intact into position for pouring next section, then moved to position for adjacent span. Hangar was designed by Ammann & Whitney, engineers, and W. E. O'Neil Construction Company, Chicago, was general contractor.

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This roof arch form was fabricated to engineering detail to assure rigid support for reinforced concrete ribs and shell. It is typical of the precision work of Timber Structures, Inc., and gave typically effective performance — only two hours were required to move the entire assembly into position for the second pouring, and only half a day to move it intact into the next hangar.

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road is currently being graded, but is passable and will be finished as an all-weather route by 1954. From Liberia to the capital city of San Jose, the highway is all-weather. Reports indicate that no actual passable road exists from San Jose to the Panama border, although plans for construction are on hand and awaiting additional U. S. financial aid.

• **Panama**—No highway exists between the Costa Rican border and the town of David. A highway is under construction between David and Remedios, and several new bridges have been built on that route. Further work to the Panama Canal Zone awaits American assistance.

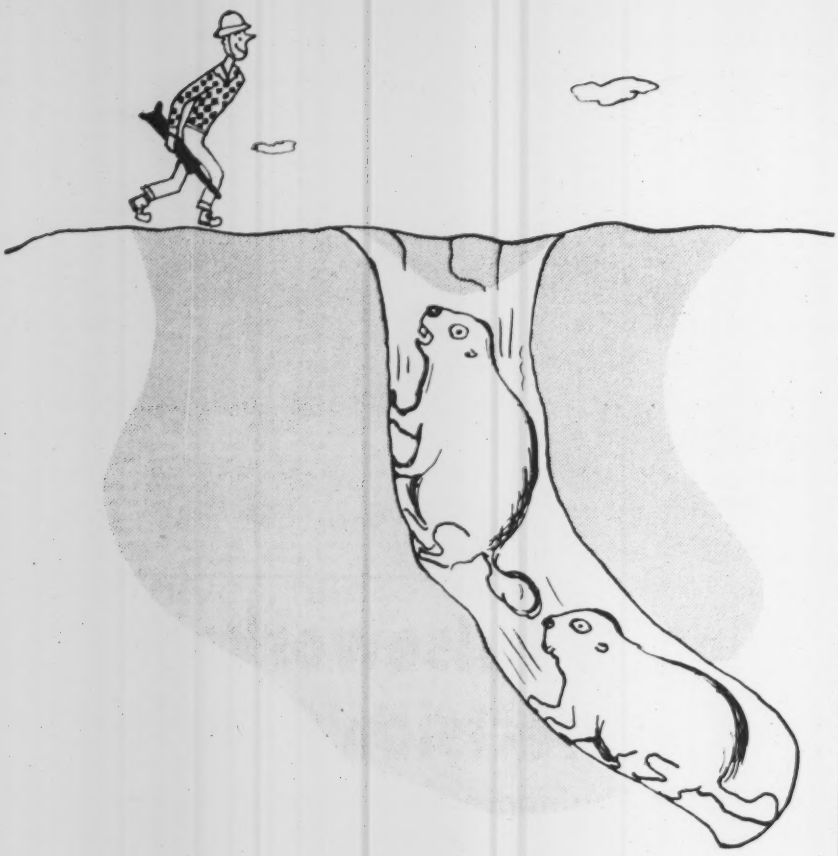
Under terms of its financial aid agreement, the U. S. provides two-thirds of the funds for the intercontinental highway while the various republics along the route furnish the remaining third. So far, over $33 million—out of an estimated $82-million total cost—has been spent by the U. S. in cooperation with Central American governments that are concerned.

International briefs . . .

• **Meeting in England**—International Federation of Prestressing will hold its first general assembly in London, Oct. 6-9, 1953. D. H. New, chairman of the Prestressed Concrete Development Group in England, will greet the delegates and preside during elections of the governing body. Papers will be presented dealing with influence of abnormal temperatures, design of statically determinate beams and slabs based on ultimate load, and statically indeterminate constructions in the elastic and plastic phases—all in relation to prestressed concrete.

• **Survey Guatemala hydro**—Westinghouse Electric Co. will make a complete survey and recommendations regarding a proposed $5-million 30,000-kw hydroelectric project on Guatemala's Pacific coastal slope near Juron. The survey is scheduled to be completed in six months.

• **UN–Japan agreement**—The first technical agreement between United Nations and Japan has been signed at UN headquarters. By this agreement, an expert of the Bureau of Reclamation of the U. S. Dept. of Interior will advise the Water Works Bureau of the Tokyo Metropolitan Government on phases of construction of Ogochi Dam. The dam will increase the water supply for Tokyo.



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Associate Engineer—S. L. Burns, Jr.
Contractor—Harmon Construction Co.

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Builders everywhere like reinforced concrete's economy . . . plus the ready availability of all the materials required from *local* sources.

Moreover, reinforced concrete means buildings that go up faster . . . that are strong, durable, and highly resistant to wind, shock, and quakes . . . that can be designed for great flexibility and beauty. Utilize these advantages in your next building—use reinforced concrete!

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The Newark Third Ward Houses—ten 12-story reinforced concrete frame buildings.

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The Terminal Construction Corporation's contract for Newark's Third Ward Houses requires 4 of the 10 buildings to be ready for occupancy 6 months ahead of the project's completion date. To meet this requirement and to keep the high cost of winter construction to a minimum called for careful planning and a close operational schedule.

After work got underway on 4 buildings, the contractor changed to Lehigh Early Strength Cement. Operations were then extended to 2 additional buildings and a pouring schedule of one and one-half floors on each of 3 days and 2 floors on the 4th was maintained without interruption.

There was no guesswork, no sacrifice of quality. The concrete was tested for 12, 24 and 30 hour strengths. Column forms were stripped in 24 hours and beam and arch forms in 48. Curing time was cut by two-thirds.

Each day's pour, averaging 500 cubic yards, was completed by 12:30 P.M. With practically no bleeding and quicker hardening of the Early Strength concrete, the finishers were off to an early start and were through by 4 P.M.

The work progressed steadily through the winter. Unproductive overhead and overtime costs were negligible. The whole project is 6 months ahead of schedule.

Try Lehigh Early Strength Cement on your next winter job. It will help you speed operations, cut down overtime and curing costs.

Deck pouring moved right along through the winter.

Finishers were off the job by 4 P.M.

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MEN AND JOBS

J. H. HAYNER—Kaiser Engineers

Hayner heads atomic group for Kaiser Engineers

J. H. Hayner has left the Atomic Energy Commisison staff to head a newly-organized atomic energy division for Kaiser Engineers. This division will look into various approaches to industrial uses of nuclear power, including the possibilities of radioactive by-products.

Hayner was assistant plant manager of Oak Ridge when it was put into operation by the Manhattan Project during World War II. Later, he served as chief of the research division when Brookhaven National Laboratory was set up on Long Island, N. Y. Then, from 1947 to 1952, he was chief chemical engineer of AEC's engineering division. Latterly he has been studying the possibilities of an atomic energy program in Brazil for the Brazilian government.

Hayner is a chemical engineering graduate of Rensselaer Polytechnic Institute, and has a master's degree from Carnegie Institute of Technology. He is a member of the American Institute of Chemical Engineers, the American Chemical Society, and the American Association for the Advancement of Science.

Bissell leaves BuShips: takes consultant post

A. G. Bissell, who has just retired after 17 years as top civilian in the welding, casting and forging branch of the U. S. Navy's Bureau of Ships, has become an engineering consultant to the Nelson stud welding division of

(Continued on page 58)

Imperial

THE Finest TRACING CLOTH

Imperial is known in drafting rooms all over the world as the traditional quality tracing cloth.

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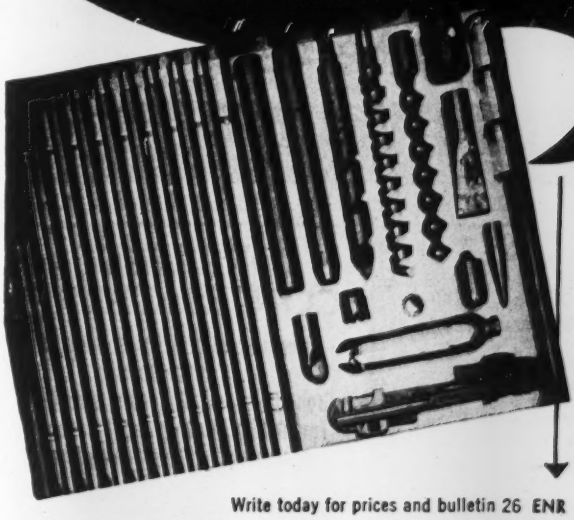

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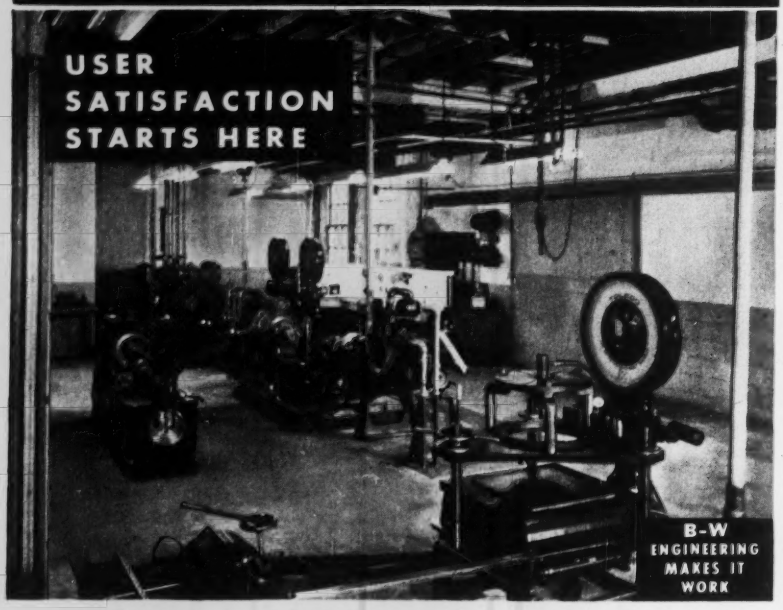
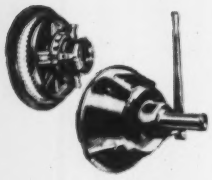


Every type and size ROCKFORD CLUTCH must pass torque, strength, pressure, spin, heat, balance, wear, deflection, friction, run-out, flatness and endurance tests before being put into production. These torture tests are made on specially designed, accurate, clutch-checking machines. Let our engineers give *your* products the benefit of ROCKFORD test-proved CLUTCH reliability.



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Diamond and Shot Core Borings
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Manufacturers, also, of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

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Dept. E, Scranton 2, Penna.

Gregory Industries, Inc., Lorain, Ohio.

Bissell has moved from Washington, D. C., to Seattle, Wash., where he will work on stud welding and engineering problems generally. He is no stranger to the area as he did much of the pioneering in arc welding at Puget Sound Navy Yard during and after World War II. Later he worked for Westinghouse Electric Corp. as general engineer for arc welding and arc welding equipment. From 1929 to 1936 he practiced as a consulting engineer in Seattle, then became welding engineer for the Navy's Bureau of Construction and Repair, predecessor of the Bureau of Ships.

Careers . . .

• **Appointed**—**Robert C. Johnson,** president of Siesel Construction Co., Milwaukee, Wis., has been promoted to rear admiral in the Civil Engineer Corps, Inactive Naval Reserve, one of the few promotions to that rank since World War II . . . **Otto A. Fusch** has left the construction division of the Atlantic District, Corps of Engineers to join the staff of Peter Kiewit Sons Co. as a senior mechanical engineer on the Portsmouth, Ohio, atomic energy project . . . **Luke D. Packard** has retired as senior highway engineer for the California Department of Public Works to become president of Aeromap Survey, Inc., Sacramento, Calif. . . . **L. A. Price** has been appointed manager of a newly established eastern division by Union Wire Rope Corp., of Kansas City, Mo.

• **Local government appointments**—**Harrell F. Mosbaugh,** Billings, Mont., has been named chairman of the Missouri Basin Inter-Agency Committee . . . **Earl R. Reeb,** former Ohio state highway director is resident engineer for construction of the new Toledo airport.

• **Elected**—**T. Carr Forrest, Jr.,** Dallas consulting engineer, was chosen president of the National Society of Professional Engineers.

• **Honored**—**James B. Hays,** of International Engineering Co., a Morrison-Knudsen subsidiary, received an honorary doctorate from his alma mater, the University of Idaho . . . **Charles A. Emerson,** consulting sanitary engineer of New York and Cleveland, received a D.Sc. from Beloit College, his alma mater . . . **H. S. Rogers,** president of Polytechnic Institute of Brooklyn, received the Lamme Award of the American Society for Engineering Education.

"John, this building of mine holds a cost-cutting *Tip-Off* from ONE BUSINESSMAN TO ANOTHER"

"What is it?" asked John, a prominent appliance manufacturer.

The contractor answered, *"Simply this: don't take your fasteners for granted!*

"An RB&W man showed me how a switch in fasteners could help me make field connections much more economically.

"He suggested switching from rivets to high strength bolts. They cost more than rivets initially, but the assembled cost is much lower. My men work faster than with rivets. The building goes up faster."

You, too, can find a cost-cutting lesson from this story, whether you're in construction* or any other industry.

MORAL: Look to your fasteners for an often overlooked opportunity to reduce costs, and strengthen your competitive position. New inventions, like RB&W's SPIN-LOCK Screw, may prove more efficient than the fasteners you're now using. Or you may save by the stepped-up production you get from using the finest fasteners . . . RB&W bolts, screws, nuts and rivets of uniform accuracy, dependability and physical properties.

Let RB&W help you make the most efficient use of fasteners on your assembly line. Address RB&W at Port Chester.

RB&W—The Complete Quality line. Plants: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices: Philadelphia, Pittsburgh, Detroit, Chicago, Dallas, Oakland. Sales agents: Portland, Seattle. Distributors from coast to coast.

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

*If you're interested in construction, write RB&W at Port Chester for a free reprint of the recent article, "No More Riveting."

RB&W 108 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

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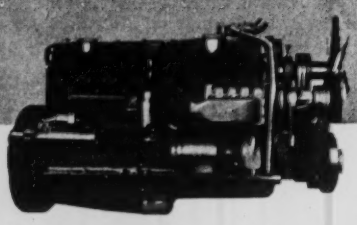
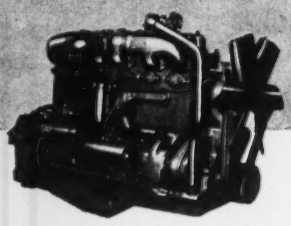
when BIG displacement Buda Diesels give you so many advantages?

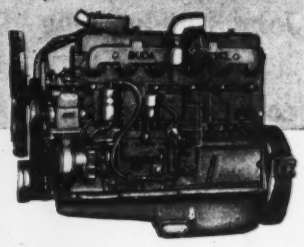
6-DAS-1128 Supercharged
350 HP at 2100 RPM



6-DA-779
185 HP at 2080 RPM



6-DAS-844 Supercharged
280 HP at 2100 RPM



BUDA Diesel Advantage:	Benefit To You:
● 12 to 18% MORE HORSEPOWER AT NORMAL OPERATING SPEEDS	Faster trips . . . heaped loads . . . more production . . . greater reserve . . . lower cost per yard
● 10 to 17% MORE USEABLE TORQUE	Greater lugging ability . . . less shifting and jerking . . . longer equipment life . . . reduced maintenance and downtime
● SMOOTHER, QUIETER OPERATION	Increased operator comfort . . . less exhaust fumes and smoke . . . greater efficiency . . . more production per shift
● EXCLUSIVE DYNA-SWIRL COMBUSTION	More horsepower per gallon of fuel . . . lower all around fuel costs

You can't afford *not* to know all the facts about BIG displacement Buda Diesels—the engines that will increase your production while reducing costs on every yard you move. Ask your nearby Buda Engine Distributor. He'll be glad to supply the facts. *The Buda Company, Harvey Illinois.*

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COAST TO COAST
FACTORY EXPERIENCED SERVICE AND PARTS

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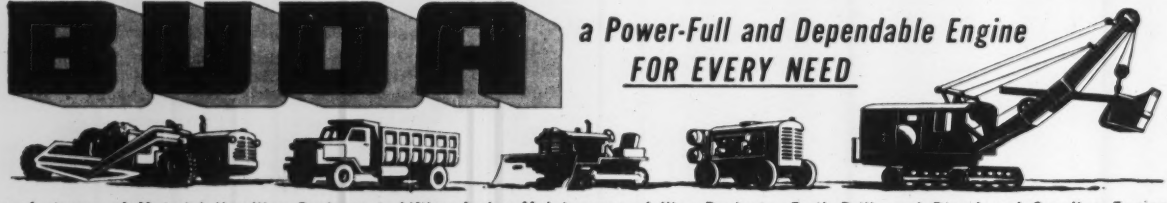
a Power-Full and Dependable Engine
FOR EVERY NEED



Manufacturers of Material Handling Equipment, Lifting Jacks, Maintenance of Way Products, Earth Drills and Diesel and Gasoline Engines

OBITUARIES

Edward L. Rish, 79, Marion, Ind., contractor, died June 25. He went to Marion in 1908 to supervise construction on the old federal building. Later projects included 17 buildings at the Veteran's Administration Hospital. He also served on the board of directors of the local hospital and supervised construction of the institution's new wing.

Owen Z. Wrenn, 63, president-secretary of the Wrenn-Wilson Construction Co. of Durham, N. C., died June 25. He got his civil engineering degree from North Carolina State College.

Carlton S. Hicks, project engineer with the Stone and Webster Engineering Corp. of Boston, died in Arlington, Mass., recently. He was in charge of engineering for large chemical and petroleum construction projects in the United States and abroad.

Everett V. Walker, city building inspector for Southern Pines, N. C., since 1950, died June 24. He was an engineer in Pittsburgh, Pa., for many years before moving south in 1948.

John Iafolla, 62, airport and road builder, died recently in Portsmouth, N. H., where he was assistant treasurer of the housing authority. He built the Houlton, Me., Air Force Base; the Beverly, Mass., airport; and part of Grenier Air Force Base at Manchester, N. H. In 1929 he served as major contractor for the southern section of Route 128 in Massachusetts.

Charles E. Sloan, 79, consulting engineer of Mill Valley, Calif., died June 20. A former Mill Valley city engineer, he also served as consulting engineer for the California cities of Gilroy, Dinuba and Rio Vista. In recent years he was consulting engineer for several housing projects in Marin County, Calif.

Raymond L. Pike, 70, died June 22 in Indianapolis. He was a civil engineer who operated an engineering firm 17 years in Cleveland, later was assistant to the city engineer at South Bend, Ind., for seven years. He went to Indianapolis 15 years ago, and was a consultant on sewer construction. He was named first director of the Indiana Economic Council, leaving that work to become a representative of the Bureau of Community Facilities, a governmental organization designed to advance money to communities for engineering work on public improvements.

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● With the grinding head automatically held against the ceiling at the proper pressure, the operator needs only to guide the machine.

FOR CEILINGS UP TO 12 FEET

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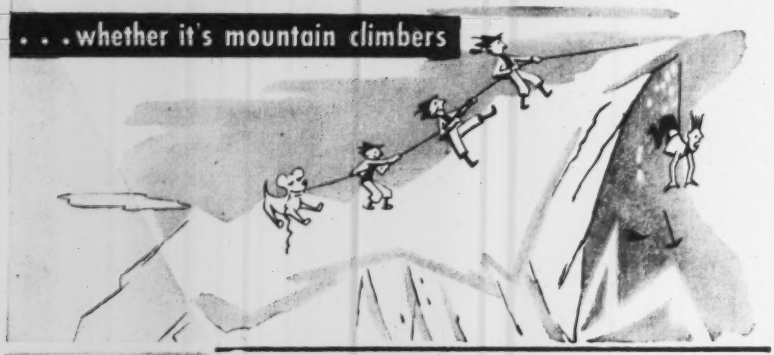
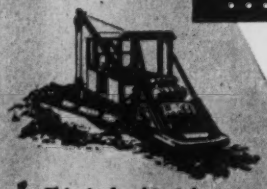
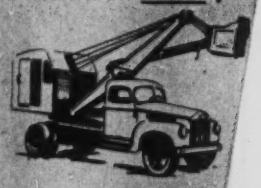


. . . or digging equipment



1. This is for big jobs

2. This is for medium jobs



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OBITUARIES

Edward W. Richards, 48, city engineer of Emporia, Va., died in Warrenton, Va., June 20. Previously he had been connected with the municipal governments of Norfolk and Elizabeth City, N. C.

Jo V. Martin, 62, of Cedar Falls, Wash., an engineer for the Seattle Water Department, died there June 18. A civil engineering graduate of Iowa State College, he had been with the department for 20 years.

Charles F. Duchscherer, 65, retired vice-president of the R. S. McManus Steel Construction Co., Inc., Buffalo, N. Y., and a civil engineer, died June 16 in Buffalo. He was with the steel construction firm 30 years, retiring in 1952. After that he was with engineers Duchscherer & Oberst. He was a graduate of Union College.

Stanley S. Swango, Sr., 59, founder and head of Swango & Sons Corp. Dayton, Ohio, building firm, died June 9. He was a contractor for 35 years.

Elmer R. Jarboe, 66, former member of the Maryland State Roads Commission and a road contractor most of his life, died June 11 in Washington, D. C. He was president of Southern Maryland Homes, Inc., a home building firm.

Peter J. Yeager, 76, proprietor of the Peter J. Yeager and Sons contracting firm, Erie, Pa., died June 11. He was a contractor for the last 45 years.

Charles D. Boggess, 48, civil engineer at the Fairless works U. S. Steel Corp., died at Trenton, N. J., June 14.

Claude W. Harris, 53, a civil engineer with the U. S. government, died in Portsmouth, Va., June 14.

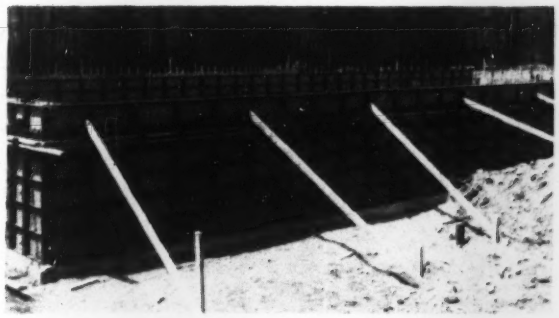
Walter De Berry, 57, a civil engineer graduate of Rensselaer Polytechnic Institute, died at Albany, N. Y., June 17.

Cyrus P. Howes, 71, for more than 33 years bridge engineer for the Texas and Pacific Railway Co., died at Dallas, Tex., June 5. He was a 1902 graduate of M.I.T. and throughout his career was a specialist in bridge designing.

Dillon F. Culbertson, 65, district enginner at Green Bay, Wis., for the Wisconsin state highway department, died there June 12. He had been with the highway department since 1917 and at Green Bay since 1918.

Versatile

Atlas Compo Forms make any shape



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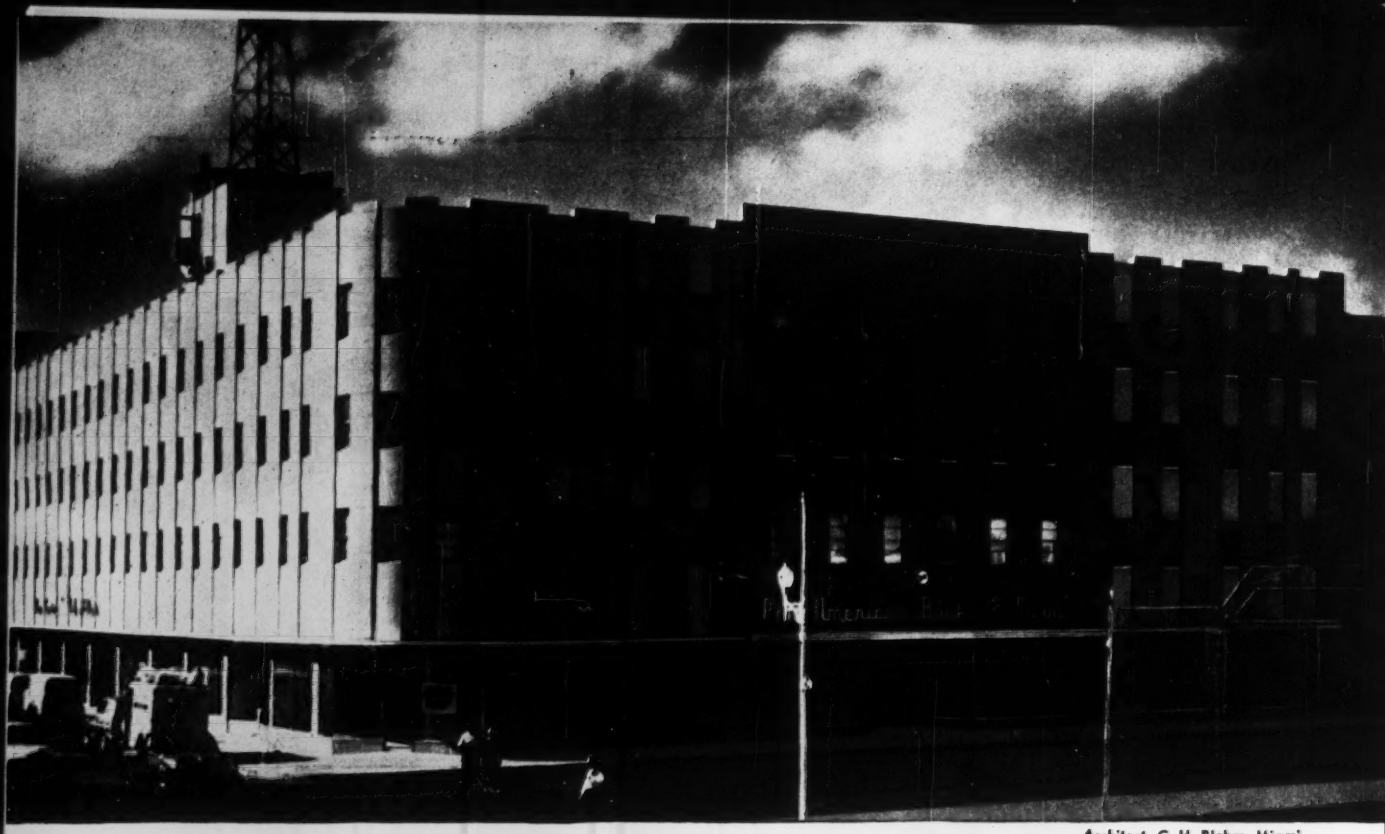
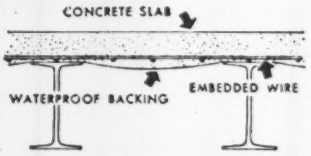


Architect: C. H. Blohm, Miami

Miami's largest, most important new office building in 16 years uses **Steeltex Floor Lath**.

The new steel and concrete Pan American Bank Building —the first major office building constructed in Miami since 1937—was designed for long life, low maintenance, and economy in construction. Each concrete deck including the roof was poured over thousands of square feet of durable, economical Steeltex Floor Lath—the modern, time and money-saving, galvanized steel wire concrete reinforcing which *carries its form on its back* (see note at right) and permits continuous work on the floor below.

Steeltex offers speed and economy because it can be installed rapidly. It insures strength, durability and safety because the galvanized welded wire mesh is properly embedded, and the slab is properly cured because the tough waterproofed backing retains the water, thus insuring the correct water-cement ratio. For detailed information about Steeltex Floor Lath, the combined form and reinforcing, see our catalog in Sweet's or write for catalog D.C. 133, Dept. ENR, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.



Note, *in the cross section and closeup that the weight of the wet concrete forces the backing away, which permits the galvanized wire mesh to assume its proper position in the slab. Steeltex Floor Lath also performs two other functions. It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.*

Pittsburgh Steel Products Company

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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
August Materials, and Labor Prices will appear in August 6, 1953 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.: truckload del.: per block		CONCRETE Ready Mixed 1:2:4, over.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 c.y., del.‡
Atlanta	$3.87	$3.56	$3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.87	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	11.45
Birmingham	3.26	2.	....	2.38n	2.38n	2.08n	2.50	2.50	1.25	1.35	.165	.165	10.45
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.215	.245a	12.00h
Chicago	3.48	3.17	...	3.25‡b	3.25‡b	3.65‡b	3.25‡b	3.25‡b	2.25‡	2.25‡	.23	.23b	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.19‡c	2.24‡c	2.24‡c	2.54‡e	2.54‡e	....	....	.21	.225a	10.95
Cleveland	N. A. in C. L.	3.02e	....	2.05af	1.85f	1.65	4.14a	4.14a	3.15‡	3.15‡	....	.24	14.40d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	....	....	.125g	.215	9.30
Denver	4.04	3.74	4.04	1.85	2.00	1.20	....	....	....	....	.23	.255a	10.50
Detroit	3.62	3.35	3.40	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.21	.21a	12.00f
Kansas City	3.30i	3.03i	3.15i	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.20ag	.215g	12.00h
Los Angeles	4.32a	3.80a	4.92	2.11a	2.31a	2.06a	2.06a	2.16a	....	....	.135/m	.237m	11.71h
Minneapolis	3.95d	3.64d	3.56	2.45‡ag	2.45‡ag	1.45‡ag	2.60‡ag	2.60‡ag	....	....	.23ah	....	11.90/k
Montreal	3.16ae	2.96ae	....	3.00	3.00	2.25	1.40if	1.40if	....	....	.20	.20a	11.10ek
New Orleans	3.35	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	4.01	3.70	3.53	2.65bk	2.65bk	1.75bk	2.60bl	2.60bl	....	....	....	....	12.55am
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡eo	2.75‡eo	2.15‡eo	2.30‡	2.40‡	2.00	1.90	.22/.25	....	12.50ep
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.23d	.23d	13.00
St. Louis	3.42/3.63b	2.99/3.25b	3.25/3.42	3.10am	2.90am	2.50/2.90am	1.70f	1.70f	1.50	1.50	.215	.215er	11.40
San Francisco	3.56	3.16	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.27el	11.25e
Seattle	4.05a	3.45a	4.80h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.90f

‡Delivered. * Prices incl. dealers discount except as noted.
CEMENT: a Subj. to 10¢ dis. b Less 2% for cash. c CL price dealers discount not incl. d Dealers sell only LCL. e Truckload lots, destination price. h LCL.
SAND, GRAVEL, STONE & SLAG: a Truck lots. b Per cu. yd. c 5 tons or more. e ¼". f Pea gravel. g Less 5% for cash. h Less than 5 tons. i Sales tax incl. j F.o.b. quarry. k Barge lots asd. l F.o.b. scow Hudson river. m Less 2% for cash. n F.o.b. cars. o 1-3 mi zone. p Add 10¢ for ea. add'l 3-mi zone
CONCRETE BLOCK: a Cinder. b Waylite. c Haydite. d Celocrete e 5½ x 8 x 12 in. f 8 x 4 x 16. g F.o.b. truck at job. i Less 2% for cash. j Less 1% for cash. k 8x8x18. l F.o.b. plant San Rafael. m F.o.b. yard.
READY MIXED CONCRETE: a 5 cu. yds. or over del. Man. b 25 cu. yds. or more. c 10–100 cu. brackets. d 1-3 mi. zone. e 2,000 lb concr. f 2500 lb. comp. h Less 50¢ for cash. i 5% off for cash. j 2% off for cash. k Sales tax included. l 1:2½:4. m F.o.b. yard. n Plus escalator clause. o Add 15¢ for ea. add'l 3-mi zone

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month: on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind.	$2.70†	Steelton, Minn.	$2.80†	Muskegon, Mich.	$2.85†	Toledo, O.	$2.75†
Clinchfield, Ga.	2.75†	Independence, Kan.	2.65†	Leeds, Ala.	2.60†	Saginaw, Mich.	2.75†	Milwaukee, Wis.	2.90†
Kingsport, Tenn.	2.75†	Hannibal, Mo.	2.70†	Duluth, Minn.	2.80†	Wyandotte, Mich.	2.75†	Green Bay, Wis.	2.90†
West Des Moines, Iowa.	2.80†	Northampton, Pa.	2.75†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	2.75†	Ironton, O.	2.75†
Nazareth, Pa.	2.75†	Universal, Pa.	2.80†	Alpena, Mich.	2.65†	Oswego, N. Y.	2.90†	Montreal City	2.66
Bath, Pa.	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich.	2.75†	Cleveland, O.	2.75†	W. Winfield, Pa.	2.80†

† *Prices to hold for third quarter of* 1953.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION (Quick-breaking) Per gal. Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	....	22.00i	....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50a	35.50a	22.00aw	35.50aw	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bw	29.25bw	.0875bw	.15bw	.0725b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00d	5.03g	23.00d	.....	23.00d	....	.1025dw	.....	....	.11d	.18d
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	.....	50.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	92.00	.. ..	27.21	....	27.21v	.....	.1202w	.....	.0925	.....	.2811v
Kansas City	e	e	e	16.20el	...	.06	.....	.07ew	.....	.06e	0.10	.....
Los Angeles	e	—.—	e	16.00dmz	...	16.00dvz	.. ..	18.00dz	.....	17.00dv	.0825f	.1725f
Minneapolis	.....	—.—	2.97h	22.00	....	24.07	.....	.0744w	.....	.08	.10	.....
Montreal	.....	e	e	27.10n	36.65n	.135n	.193n	16.30nu	18.80nu	.132n	.184nz	.225nz
New Orleans	.....	—.—	.....	17.50e	....o	17.50ev	.....o	.085ew	.....o	.0825e	.085	. ...
New York	.....	.....	3.12f	26.26q	47.59q	25.26st	46.58st	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	37.00	.10	.21	27.00	40.00	.095	.10	.22
St. Louis	.....	.....	.....	18.66f	....	.1758	.....	.084 / 0865w	.....	0.155	.10	.....
San Francisco	.....	55.00e	.....	17.50q	33.00qp	17.50qkv	33.00qkv	20.00q	37.50q	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	20.00h	..	19.75hv	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: a CL. b 3½ x 4 x 8½. c 2½ x 8½ x 4. d LCL, truck deliveries. e Not used. f 2" interior 6¢ treat. g 3". h 8¢ treat. i 3 x 3½ x 8½.
ASPHALTS: a Price at plant, Everett, Mass. b F.o.b. refinery, Lockport, Ill. c F.o.b. Sugar Creek, Mo. d F.o.b. refinery, El Segunda. e F.o.b. Baton Rouge. f F.o.b. Wood River or Roxana, Ill. g F.o.b. Richmond, Calif. h F.o.b. Martinez. i F.o.b. refinery, Baltimore. j F.o.b. refinery: Inglewood, Calif. k 50–110 penetr. l Less than 100 penetr. m 40–80 penetr. n Tax incl. o Drums not avail. p Shipped in steel bbl. q 40–85 penetr. r In customer's drums. s Shipped in drums, per drum. t 85–300 penetr. u Per 100 gal. v Per ton. w Per gal. x Also tank trucks y F.o.b. Oakland. z F.o.b. refinery, Cleveland. a F.o.b. Norco, La.

Deteriorated concrete and exposed reinforcing steel in piers of tailrace prior to Prepakt restoration.

Without dewatering or halting the generators, tailrace piers were converted to better-than-ever condition by Prepakt techniques.

"DON'T STOP THE GENERATORS"

...DIDN'T STOP PREPAKT!

Seriously eroded concrete tailrace piers at the power plant of a leading Ontario pulp-and-paper company demanded prompt repair—but a power shutdown meant costly production delays.

The use of Prepakt methods and materials permitted this project to be completed quickly and economically *without shutting down the generators.*

The "non-stop" technique used on this job took advantage of Prepakt's proved, low-cost restoration procedure. First, cracked and crumbling materials were removed from the deteriorated piers. Then, forms were built and filled with coarse aggregate. Finally, pumping Intrusion mortar displaced the water and thoroughly consolidated the preplaced aggregate.

This produced monolithic, high strength piers having superior weather resistance *without unwatering.* Construction of cofferdams, expensive underwater concrete placement and power interruptions were avoided. These outstanding cost-saving advantages of the Prepakt technique have made it the preferred method for all types of concrete repair and restoration work.

A request on your company letterhead will bring full information on this and other Prepakt installations. Write the Main Office, Room 779-G, Union Commerce Building, Cleveland.

CONTRACTORS PREPAKT ENGINEERS

INTRUSION-PREPAKT, INC.
THE PREPAKT CONCRETE CO.

MAIN OFFICE: CLEVELAND 14, OHIO
CANADIAN OFFICE: TORONTO, ONTARIO

CHICAGO • ATLANTA • BOSTON • DENVER
PHILADELPHIA • SEATTLE • SAN FRANCISCO

ZURICH • PARIS • MADRID • STOCKHOLM
HELSINKI • BERLIN • LONDON • HAVANA

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING	STEEL RAILS Per Net Ton			TRACK SUPPLIES			
					Base	Standard	Light	Re-rolled	Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$4.10	$4.10	$4.15	$7.85	....	$86.00	$104.00	Not	$5.275	$6.65	$5.125	....
Chicago Area	4.10	4.10	4.15	7.85	$4.925	86.00	104.00	avail-	5.275	6.65	5.125	....
Pittsburgh Area	4.10	4.10	4.15	7.85	4.925	86.00	104.00	able	5.275	6.65	5.125	9.85
Buffalo Area	4.10	4.10	4.15	7.75	4.925	86.00	104.00	....	5.275	6.65	5.125	9.85
Cleveland	....	....	4.15	7.85	4.925	.....	.....	....	....	6.65	....	9.85
Youngstown Area	....	....	4.15	....	....	.....	.....	....	....		....	....
Geneva	4.10	4.10	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	4.925	.....	.....	....	....	6.65	....	....
Pueblo	4.30	4.70	4.75	....	....	.....	98.00	....	5.275	6.65	5.125	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATH k Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING d Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$38.00‡	$42.00‡			
Baltimore	6.98	6.61l	....	....	....	42.00	45.00			
Birmingham	5.95	5.80	5.80	.05	.15	47.00p	52.00p			
Boston	6.68a	6.92	6.92	....	....	39.50	43.50			
Chicago	6.46	5.75ff	5.75f	.0625	....	46.00C	51.00C			
Cincinnati	6.69ak	6.71r	....	....	.15	38.00zzee	42.00zzee			
Cleveland	6.40	5.51v	....	....	....	36.50‡	40.50‡			
Dallas	9.05	7.25	7.25	....	....	49.00	52.00			
Denver	7.55	7.30e	....	....	....	49.00s	60.50qs			
Detroit	6.42	6.62n	....	....	.30	53.00	58.00			
Kansas City	7.05nn	7.27	....	....	....	36.00	40.00			
Los Angeles	6.90fkk	6.57g	....	....	....	48.00	54.00			
Minneapolis	6.90kk	7.80ll	7.80ll	....	....	34.50	38.50			
Montreal	7.00iB/7.00A	4.90i	4.90g	....	....	58.00k	64.00k			
New Orleans	....	5.98ok	....	.05	....	66.00	60.00			
New York	7.20	7.01	7.01	....	.30	38.50st	44.00st			
Philadelphia	6.42	6.67	....	....	....	38.00‡	42.00‡			
Pittsburgh	6.40	6.40	....	....	.10	37.60	39.60			
St. Louis	6.86a	6.10e	6.10e	....	....	50.00aa	55.00aa			
San Francisco	7.25	6.85l	....	....	....	40.50	43.50			
Seattle	4.85e	6.05el	....	....	....	57.00mmm	47.00mmm			

A.P.M.* Joliet, Illinois, Donora, Penn. $3.08
F.o.b. Mill: Monessen, Penn., $3.08

A.P.M.* Joliet, Illinois, Donora, Penn. $2.02
F.o.b. Mill: Monessen, Penn., $2.02

A.P.M.* Joliet, Illinois, Donora, Penn. $3.23
F.o.b. Mill: Monessen Penn., $3.23

* At Producing Mill.

‡ Delivered. *b* Less than 700# add 50¢; 700–1499# add 65¢; 1500 to 7999# add 50¢. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivered in free delivery zone. *g* 10,000 to 39,999 lbs. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq. yd. *n* 5–10 tons. *o* 5 to 20 tons base. *p* Del. of 500 sq. yd. or more. *q* Std. ribbed, 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra — 1 in., 1¼ in., 1½ in., 30¢, ¾ in., ½ in., 45¢, ⅝ in., 55¢, ½ in., 80¢, ⅜ in., $1.10, ¼ in., $2.20. *v* 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* $0.0093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales. *hh* 10,000–19,999 lbs. *ll* 5 to 8 tons, f.o.b. city. *mm* 2% off for cash. *nn* 1–5 tons. *ii* 10 tons to CL. *a* 2000–9999 lbs. *A.* Amer. struct'l shapes. *B.* Canadian shapes. *C.* Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft., f.o.b. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	12 in. s.s.	24 in. ds.	36 ins ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: †ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.44	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$1.23	$2.62
Baltimore	121.50	1.46	2.42	.518	.999	4.095A	11.1725A	178.20	274.80	.95	2.60
Birmingham	101.00	1.44	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston	113.00	1.46	2.20	.553uvz	1.0665uvy	4.41uvy	11.90uvy	187.80z	289.20z	1.62mg	3.95mg
Chicago	107.00	1.44	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	.581y	1.120y	4.41y	11.375y	164.40	254.10	.75m	2.80m
Cleveland	108.00	1.46	2.29	.49z	.999z	3.96z	10.66z	158.00m	245.65m	.75m	2.95m
Dallas	112.00	1.46	2.54	.436	.822	3.234b	9.17b	.....	.....	.49	1.60
Denver	115.00	1.55	2.54	.45dd	.78dd	3.48dd	....	.....	.....	.74m	2.80m
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00m	360.00m	.80	3.20
Kansas City	113.00	1.46	2.29	.53	.945	3.87	10.60	250.00	480.00	.70g	3.00g
Los Angeles	133.00	1.53	2.29	.62f	1.26f	5.21f	14.80f	228.20f	348.90f	95	2.75ff
Minneapolis*	112.00	1.50	2.42	.72mo	1.32mo	5.32mo	....	.....	.....	1.38h	3.93h
Montreal	110.00	....	....	.85z	1.50z	5.25z	8.50z	.....	.....	1.17j	3.11j
New Orleans	101.50	1.44	2.42	.53	.965	5.13	....	300.00bb	500.00bb	.65	2.29
New York	111.35	1.46	2.20	.64	1.24	4.91	12.81	.....	.....	1.15	3.00
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55A	3.75A
Pittsburgh	110.00	1.46	2.20	.428m	.794m	2.97m	7.92m	152.00	244.00	1.05A	2.50A
St. Louis	112.00	1.46	2.29	.51	.93	3.65	8.50	140.00l	280.00l	1.20il	2.85Ail
San Francisco	127.00	1.55	2.29	.61d	1.20d	5.03d	12.57d	240.00l	400.00l	.73	3.02
Seattle	124.00	1.55	2.42	.51b	.91b	....	....	150.00c	.....	.85ee	2.58ee

| | *WROUGHT STEEL PIPE (Full standard weight) Discount from list, see footnote | | | | |

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh
Atlanta	† $79.00	$82.50	$73.50	$76.00	$79.50	$83.00	$81.00	.....	.....
Baltimore	* 88.00	91.00	75.00	75.00	75.00	80.00	111.50	.....	.....
	103.00g	*103.00g*	*98.50g*	*98.50g*	*98.50g*	*98.50g*	*103.00*	*$111.00*	*$111.00*
Birmingham	† 80.50	82.50	70.50	80.50	83.50	85.50	95.50	.....	.....
	83.50	*83.50*	*77.50*	*79.50*	*78.50*	*78.50*	*85.50*	*85.50*	*85.50*
Boston	101/105a	103/109a	94/100*	95/104*	97/107a	100/112a	.....	.....	.....
	$ *94.00**	*94.00*	*96/100*	*97.00*	*97.00*	*96/100*	*108/110*	*108.00*	*110.00*
Chicago	** 99.00	104.00	91/92	99.00	100/101	105.00	104.00	.....	.....
	98.00	*100.00*	*101/102*	*105.00*	*106/107*	*107/108*	*108.00*	*108.00*	*108.00*
Cincinnati	* 99.00	105.00	88.00	98.00	105.00	110.00	122.50	.....	.....
	115.00	*115.00*	*117.00*	*115.50*	*117.00*	*115.00*	*145.00*	*145.00*	*145.00*
Cleveland	** 94.00	96.00	87.00	93.00	95.00	98.00	.....	.....	.....
	.....	.....	*100.00*	*101.00*	*101.00*	*101.00*	*108.00*	*108.00*	*108.00*
Dallas	k† 78.00	80.00	69.00	58.00	59.00	59.00	.....	.....	.....
Denver	* *Not in stock*		*109.00*	*109.00*	*107.00*	*111.00*	*121.00*	*135.00*	*140.00*
Detroit	† 110.00	115.00	101.00	110.00	114.00	118.00	.....	.....	.....
	101.50	*102.50*	*105.50*	*106.25*	*105.25*	*104.00*	*118.75*	*122.50*	*122.50*
Kansas City	* 122.00	122.00	122.00	122.00	122.00	122.00	.....	.....	.....
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*
Los Angeles	1 *92.00*	*92.00*	*92.00*	*92.00*	*92.00*	*92.00*	*114.00*	*120.00*	*114.00*
Minneapolis	# *135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*155.00*	*155.00*	*155.00*
Montreal	ab85.00	90.00	85.00	90.00	100.00	100.00	.....	.....	.....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	.....
New Orleans	† 100.00	100.00	92.50	85.00	90.00	94.00	118.00	.....	.....
	† *97.00*	*101.00*	*109.50*	*109.50*	*107.50*	*107.25*	*107.50*	*117.50*	*107.50*
New York	1 105.00	108.00	110/115	115/120	120/125	125/130	150/160	.....	.....
			Range from $112.00 to $117.00				*150/155*	*144/155*	*144/155*
New York	** 90.00	92.00	80.00	90.00	91.00	94.00	130.00	.....	.....
	92.00	*92.00*	*96.00*	*97.00*	*97.00*	*97.00*	*110.00*	*118.00*	*118.00*
Philadelphia	†		**Range from $110.00 to $127.00**				110/127	.....	.....
			Range from $120.00 to $150.00				*150/140*	*150.00*	*150.00*
Pittsburgh	†		**Range from $90.00 to $95.00**			.....	110/120	.....	.....
			Range from $110.00 to $120.00			.....	*150/140*	*140/155*	*140/155*
St. Louis	#c107.00e	110.00e	101.00d	111.00d	117.00e	118.00e	.....	.....	.....
	.....	.....	*112.00l*	*118.00e*	*118.00e*	*117.00e*	*155.00e*	*175.00*	*195.00*
San Francisco	A† *61.00*	*61.00*	*63/65*	*63/65*	*62.00*	*65.00*	*66.00*	*64.00*	*64.00*
Seattle	† *80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*85.00g*	*85.00g*	*85.00g*

	LONG LEAF Y. P. Merchanteble grade up to 20 ft.		PLYWOOD Rail freight increment (See note for base prices)	
	2x12 Rgh	12x12 Rgh	¾"	¾"
Atlanta	.....	.....	$22.32	$27.24
Baltimore	$155.00	$155.00	25.92*	31.60*
Birmingham	115.50	155.50	21.78	26.58
Boston	.....	.....	25.92*	31.60*
Chicago	132.00	132.00	22.45*	27.37*
Cincinnati	145.00	145.00	25.00*	30.48*
Cleveland	.....	.....	25.37*	30.93*
Dallas	97.00	98.00	18.72	22.80
Denver	.....	.....	13.92	16.98
Detroit	.....	.....	25.00*	30.48*
Kansas City	.....	.....	16.56	20.16
Los Angeles	.....	.....	16.61*ab	20.25*ab
Minneapolis	.....	.....	19.89*	24.25*
Montreal	.....	.....	.....	.....
New Orleans	150.00	148.00	18.72	22.80
New York	210/240	210/240	25.92*	31.60*
New York	200.00	200.00	.....	.....
Philadelphia	210/220	210/220	25.92*	31.60*
Pittsburgh	110/120	115/125	25.92*	31.60*
St. Louis	.....	.....	18.72	22.80
San Francisco	.....	.....	12.22*a	14.91*a
Seattle	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *l* 8–10 ft. lengths. *n* ¼ #1, ¼ #2 & ¼ #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $179.00; on ½", $202.00. Exterior plyform ¾" $199.00, ¾" $223.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment, *b* 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	B quality	EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2365
Baltimore	76%d	78%d	.2365
Birmingham	83%	83%	.1840
Boston	79–10%	79–10%	.2365
Chicago	78%	78%	.2365
Cincinnati	78%	78%	.2365
Cleveland	78–10–10%	78–10–10%	.2765
Dallas	75%	75%	.2440
Denver	80%	80%	.2415
Detroit	78–10–10%	78–10–10%	.2365
Kansas City	80–10%	80–10%	.2415
Los Angeles	73%	78%	.2390
Minneapolis	78–10%	78–10%	.2415
Montreal	40–5%bc	40–10–5%b	21.60Ai
New Orleans	78%	77%	.2415
New York	82–10%	82–10%	.3975g
Philadelphia	78%	80%	.2365
Pittsburgh	82%	82%	.2090
St. Louis	80–10%	80–10%	.2415
San Francisco	70%	70%	.2365
Seattle	75%	78%	2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40%

Glass: *a* Jobbers' list price per box, 14 x 20, sa, $42.75 for A quality, $37.50 for B quality; 14 x 20, da, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40% Forcite 60%, $23.35. *i* F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215– .229	.2415– .249
Rocky Mtn. States	.189 – .2015	.2215– .229	.2415– .254
Pacific N. W. States	.1865– .199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165– .219	.2365– .2415

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	8-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.80/.68	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.—2-ft. from butt	8-in.	80 to 85-ft.	.83/.93	.94
14-in.—2-ft. from butt	8-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	8-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak	.....	.....	.....	.....
	Pine	.....	.....	.....	.....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	.....	3.60a	.....	4.60a
Los Angeles	Douglas Fir	.....	.....	.....	.....
	Redwood	.....	.....	.....	.....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.08	.....	3.90	.....
	Red Oak	2.98	3.75a	3.72	4.88a
	Sap Pine or Cypress	.....	3.56a	.....	4.64a
San Francisco	Douglas Fir	2.20e	3.25af	2.92bf	4.30eaf
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.10
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.85

PEDESTRIAN BRIDGE for Mt. Carmel High School, Lawson, Kentucky. This is one of the smallest suspension bridges designed and fabricated by American Bridge in many years. Structure was erected by the faculty and students of the school.

Study in Extremes
by
AMERICAN BRIDGE

SAN FRANCISCO-OAKLAND BAY BRIDGE fabricated and erected by American Bridge is the world's greatest. It is 8½ miles between terminals of which 4½ miles is steel superstructure over San Francisco Bay.

Most people associate American Bridge with *big* bridges. And that's understandable, for they're the ones that make the headlines.

But, American Bridge also builds small bridges. In fact, we have recently designed and fabricated a part of an exceptionally small suspension bridge. We show it here. And to give you a better idea of the wide variety of our work, we also show a picture of the famous San Francisco-Oakland Bay bridge, the world's greatest bridge.

What a study in extremes! The little pedestrian bridge is only 402′ 7½″ long and 6′ wide, while the main structure for the tremendous San Francisco-Oakland Bay bridge is 22,720′ long. It has two main suspension spans, each 2,310′ long. The main span of the tiny foot bridge measures but 244′ 7½″! The total weight of the smaller structure is approximately 25 tons; steel for the larger job weighs 201,000 tons!

Contrasting these two bridges is just another way of saying that no bridge is too large or too small for American Bridge. We have the fabricating facilities, erecting equipment and technically trained personnel to handle any type of steel construction with exacting precision, thoroughness and speed . . . any time, anywhere. For detailed information regarding your requirements, call our nearest office.

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The new sound and color motion picture—*Building for the Nations*—a candid, factual photographic record of the highlights of the fabrication and erection of the United Nations Secretariat Building in New York is now available for free showing in churches, schools, clubs and industries. For bookings, write Pittsburgh office.

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AMERICAN BRIDGE

USS

UNITED STATES STEEL

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00*k*	41.00*k*	32.00	21.00	....
Birmingham	126.00*p*	142.00*p*	237.00*p*	284.00*p*	....	....	23.50*ff*	28.00*gg*	26.37	17.10	*
Boston	196.00†	209.00†	392.00†	383.25†	....	....	36.85*p*	39.85*p*	30.00†	28.00†	....
Chicago	135.00	145.00	280.00	....	....	....	26.00	28.00	30.80	26.00	....
Cincinnati	185.00*j*	195.00*j*	340.00*jdd*	....	....	....	40.00*j*	46.00*j*	26.72*j*	26.72*j*	....
Cleveland	172.00**	183.00**	....	....	....	....	34.50	34.50	28.25	23.25	32.00*ss*
Dallas	....	118.00	....	....	....	....	19.75	35.25	32.00	21.80	....
Denver	....	....	....	....	....	....	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	127.75	136.25	255.55	....	317.25	362.60	36.60*cc*	34.60*cc*	33.50	31.50	....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	27.50	26.50	32.00	26.00	28.50
Los Angeles	r	r	r	r	r	r	27.50§	....	34.00	34.00	35.00
Minneapolis	172.00*p*	193.00*p*	400.00*p*	193.00*wp*	....	....	34.00*wp*	43.00	39.00*bbe*	29.00*bbe*	41.00*bbds*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00	....	38.50	44.00	34.80	32.50	24.60*u*
New Orleans	170.00	170.00	310.00	380.00	....	....	31.00	....	....	28.00	28.00
New York	138.70*h*	147.90*h*	203.40*ch*	221.90*hn*	....	....	35.00	....	36.00	32.00	....
Philadelphia	145.30	155.00	290.60	348.70	....	....	30/34	35/42	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	142.00*cc*	160.00*cc*	316.00*cc*	465.00*cc*	439.00	621.50	40.00*al*	36.00*a*	.85*aaa*	.70*aaa*	1.20*aaspss*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	....	....	....	37.00	....	26.60	26.60	2.65*m*
Seattle	223.00*cc*	230.00*cc*	....	240.00*ccw*	....	....	39.00*a*	49.00*a*	37.50*aAA*	1.45*f*	3.90*mAA*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ‡ Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD‡ Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., grums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl per ton
Atlanta	$16.50	$28.275	....	....	....	....	....	....	....	....
Baltimore	16.25	27.90	2.65	4.10	3.22	2.66	4.43	4.43	.47	45.56
Birmingham	16.50	28.275	3.90	3.40	....	2.80	2.78	2.75	....	42.00*ee*
Boston	16.25	27.90	....	....	....	2.91*qq*	2.97*oq*	2.97*oq*	.42*g*	45.70*g*
Chicago	16.25	27.90	....	....	....	3.29‡*u*	3.29‡*o*	3.29‡*o*	38.00‡*bbr*	48.00‡
Cincinnati	16.25	27.90	....	....	....	2.66	2.66	2.66	.46*y*	46.56
Cleveland	16.25	27.90	2.34*pqq*	2.81*qq*	2.42*qq*	2.83*q*	2.83*o*	2.83*o*	.43*y*	40.70*hh*
Dallas	16.50	28.65	....	4.05	....	3.50*q*	3.75*o*	4.35*o*	.36	46.00
Denver	16.75	28.40	3.07	5.15	2.87	2.66*o*	2.61*o*	2.61*o*	.43*ff*	47.00
Detroit	16.25	27.90	2.35	3.40	2.50	2.75	2.50*fj*	2.50	.51	40.00
Kansas City	16.25	28.65	....	2.71*ys*	2.65	2.93	2.93*o*	2.93*o*	.43*	53.00
Los Angeles	16.25	28.15	3.30*	4.50*	4.20*	2.48*	1.86*ee*	1	.55*	*f*
Minneapolis	16.25	29.88/28.02	....	....	....	2.66*idd*	2.66*hidd*	2.66*hidd*	.44*idd*	40.70*r*
Montreal	....	21.95	2.95*fff*	4.05*fff*	3.25*fff*	4.85*t*	3.65*tf*	3.65*tf*	1.24*kt*	3.78*kt*
New York	16.25	27.90	....	....	....	2.66*q*	2.66*qo*	2.66*qo*	.44*qz*	40.70*
Philadelphia	16.25	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	16.25	27.90	2.65	2.85	3.15	2.85	3.00*o*	3.00*o*	.35	43.00
St. Louis	16.25	27.90	....	....	....	2.61	2.61*h*	2.61*h*	.395*y*	41.70
San Francisco	16.25	28.15	2.40	....	3.40	2.95	3.00*aa*	....	.49	....
Seattle	16.25	28.40	2.96*m*	2.80*m*	....	3.58*mqcc*	3.05*hmcc*	....	.59*mcc*	52.00*jmc*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 5-49A. *c* ASTM Spec. D206–31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *j* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less. *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bc* Roofers coating and cement. Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt. In 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D*. Std Black. *E* Ready-mixed, *F*. Over 80% ferric oxide. * Aver. wt. approx. 500 lbs. *q* Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$2.90	$2.35	$2.60	$2.25	$2.75	$2.75	$2.90	$1.20	$1.20
Baltimore	3.20*d*	2.58	3.275*t*	3.10/3.25	3.075*t*	2.875	2.975*t*	1.565*t*	1.565*t*
Birmingham	3.00	2.24	2.90	2.16	2.52	2.875	2.80	1.225	1.325
Boston	3.06*	2.75	2.82	3.00	3.20*f*	3.00*d*	2.95*d*	1.99*	1.99*
Chicago	3.40*k*	3.15*G*	3.20*	3.00*m*	3.525*v*	3.37*t*	3.24*	2.35*h*	2.35*h*
Cincinnati	3.225	2.625**	2.915	2/2.50/3.05**	3.05	3.00	2.90	2.02	2.02
Cleveland	3.25*t*	3.20*t*	3.20*t*	3.20	3.20*t*	3.20	3.20*G*	2.45	2.45
Dallas	3.50	2.4875	2.75	2.625	3.437	2.75	2.7625	1.40	1.35
Denver	3.50	2.625	2.50	2.63	3.30	3.00	2.97	1.725	1.725
Detroit	3.30*	3.08*	3.23*	3.20*	3.32*l*	3.22*ll*	3.075	2.28*	2.28*
Kansas City	3.50*	2.675	2.805	2.515/2.76*	3.25	2.80	2.90	1.88*	1.88*
Los Angeles	3.175	2.70	2.925*h*	2.57	3.437	3.00	2.90	2.05	2.05
Minneapolis	3.125	2.65	2.82	2.50*	2.90*	3.00*n*	2.85	1.95	1.95
New Orleans	3.05	2.42	2.80*	2.60	2.625	2.65	2.75*G*	1.375	1.375
New York	3.85*tr*	3.24*hll*	3.50*ll*	3.50*ll*	3.95*t*	3.705*aa***	3.4455*bj*	2.05	2.05
Philadelphia	3.61*t*	3.10	3.32*t*	3.05/3.30	3.475*h*	3.45*	3.20*	1.75	2.05
Pittsburgh	3.475	3.20*t*	3.225*t*	3.25*t*	3.30*t*	3.35	3.00	2.025*t*	2.025*t*
St. Louis	3.55*c*	2.90*J*	2.90*w*	3.00	3.175	3.09*c*	2.90*ll*	2.075*h*	2.075*h*
San Francisco	3.40*hk*	2.83	2.85	2.66	3.275*	3.175	3.35	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

* Cost of living bonus now included in basic wage. *t* Includes 5¢/hr tool replacement. † Plus 2¼% vacation pay.

* 6 hr. day. *h* 7 hr. day. *c* Incl. 3% vac. stamp fund for bricklayers; 4% for electricians plus 7¼¢ WF. *d* Incl. 10¢ H&WF. *e* Incl. 6¢ H&WF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF. *h* $2.45 homes & housing plus 5¢ VF. *i* Incl. 3½% WF and 15¢ PF. *j* Incl. 9¢/hr WF. *k* Incl. 7½¢/hr WF. *l* Incl. 4% VF. *m* Incl. 5¢/hr WF. *n* Incl. 20¢ H, W, Ins., Vac. & Retirement. *o* Incl. 10¢ PF, 8¢ WF. *p* Incl. 3% WF, 3% PF. *r* Incl. 3% WF and 20¢ PF. *s* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t* Incl. 7½¢ H&WF. *u* Incl. 1½% WF. *v* Incl. 10¢ WF. *w* Negotiating. *x* Incl. 8¢ WF. *y* Incl. 22½¢ WF. *z* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 10¢ WF, 10¢ WF, 10¢ PF & 20¢ B.F. *B* Incl. 3% WF, 6 PH. *C* Incl. 2½¢ H&WF. *E* Plus 5% WF, plus travel pay per day. *F* Plus $1/per day travel time. *G* Incl. 10¢ WF. *H* Incl. 7¢ WF. *I* Incl. 15¢ H&WF. *J* Revised.

MEXICO CITY PRICES

In Pesos, F.o.b. City		May '53	June '53
Common Wages—Building (8 hr. day)	av. per hr.	1.06*	1.06*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	1.25*	1.25*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Steel Shapes 3"–15" x 12 meters	per metric ton	1224.23	1224.23
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1386.77	1386.77
½" x 11 meters	per ton	1375.56	1375.56
⅝" x 11 meters	per ton	1364.35	1364.35
¾" x 11 meters	per ton	1353.14	1353.14
⅞" x 11 meters	per ton	1353.14	1353.14
1" x 11 meters	per ton	1353.14	1353.14
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	55.00	55.00
Rose Gravel	per tr. load	52.00	52.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	750.00
1st Class Pine	per M ft.	1350.00	1350.00
2nd Class Pine	per M ft.	1200.00	1200.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.018 **ENR Common Average:** $1.877

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ Conn., Hamden—STORE, etc.—B.A. 7/13—Wescott & Mapes, Inc., archt., 109 Church St., New Haven, (selected list of bidders) concrete, structural steel store and warehouse, Dixwell Ave. and Skiff St., for Sears, Roebuck & Co., c/o R. K. Wilson, N.E Regional Mgr., 201 Brookline Ave., Boston, Mass. $1,750,000. CD 2/27/51.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Thomas O'Connor & Co., Inc., 238 Main St., Cambridge, Mass. CA. Est. $1,000,000. SEMINARY addn. to St. Clement Hall, BRIGHTON, MASS. St. Johns Seminary, Archdiocese of Boston, 1 Lake St., Brighton, Mass. Bids June 10. CD 6/1.

▲ White Constr. Co., 134 Newbury St., Boston, Mass. CA. $1,325,993, est. $1,250,000. HOUSING Proj. Mass. 200-3, CHELSEA, MASS. Chelsea Housing Auth., 54 Locke St., Chelsea, Mass. CD 3/25, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., Brooklyn—B.A. 7/14—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. No. 8, concrete ramps on Brooklyn and Queens approaches of new Vernon Avenue Bridge between Brooklyn and Queens Boros. Plans deposit $20. CD 11/20/44.

N. Y., Rochester—B.A. 7/23—Fred W. Ereth, city purch. agt., City Hall, No. 20 S. Fitzhugh St., Zone 14, constr. West Side Incinerator and furnishing equip. Plans deposit $75. Nussbaumer, Clarke & Velzy, 327 Franklin St., Buffalo, N. Y., engrs.; adv. ENR 7/9.

▲ Pennsylvania—B.A. 7/29—General State Auth., 18 and Herr Sts., Harrisburg, flood control dam and reservoir on First Fork of Sinnemahoning Creek, Cameron and Potter Counties. $7,000,000. Plans deposit $100. Gannett, Fleming, Corddry & Carpenter, 600 N. 2nd St., Harrisburg, engrs. CD 11/30/51.

BIDS ASKED—BUILDINGS

† Md., Carderock—WATER TUNNEL BLDG.—B.A. 8/12—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., 3 story, bsmnt., 36 in. water tunnel bldg., David W. Taylor Model Basin, NOY 73326. Plans deposit $40.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Bates & Rogers Constr. Corp., 600 W. Jackson St., Chicago, Ill., LB. $6,644,126, est. $6,676,000, 1.2 mi. City of Buffalo: Fuhrmann Blvd. and Ramp C (Cont. 3), High Level Bridge, FAC. 53-14, Erie Co.;
Laurence J. Rice, Inc., 30 Deepdene Rd., Forest Hills 75, N. Y., LB. $1,650,419, est. $2,000,000. 0.44 mi. Major Deegan Expressway Cont. 7B, FA. MDE. 53-5. Bronx Co. Bids June 25. CD 6/3.

▲ NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
Stento Constr. Co., Inc., 60 Exchange St., Binghamton, N. Y., LB $185,978, est. $186,000, 3.46 mi. Meco-Caroga Lake, SH. 618, Gloversville-Meco-Phelps, SH 246, FARC. 53-56, Fulton Co.;
Bruno J. Caradori Constr. Co., Lancaster, N. Y., LB $146,087, est. $257,000, 5.41 mi. Nicholville-Dickinson, Pt. 2, SH. 9265, Dickinson-West Bangor, S.H. 9076, FA. RC. 53-54, Franklin Co.; LB $176,405, est. $208,000, 3.62 mi. Schenevus-Maryland, S.H. 319, FARC. 53-60, Otsego Co.;
Asphalt Stone Products, Inc., Schenectady, N. Y. LB $91,391, est. $95,000, 2.65 mi. Schenectady-Duanesburg, Pt. 2, S.H. 5545, FARC. 53-58, Schenectady Co.;
County Asphalt, Inc., 129 Main St., Tarrytown, N. Y., LB $149,422, est. $154,000, 3.11 mi. Kingston-Ellenville, Pt. 3, SH. 141, FARC. 53-57, Ulster Co.; LB $124,785, est. $143,000, 2.93 mi. Sidney-Unadilla, S.H. 708, FARC. 53-53, Otsego Co.;
King Paving Corp., Alphaus Rd., Schenectady 3, N. Y. LB $89,951, est. $103,000, 2.69 mi. Dresden Sta-Putnman, S.H. 8225 A.R.C. 53-55, Washington Co.;
A. Plotzker Co, Inc., 79 Woodstock Rd., Rochester 9, N. Y., LB $200,725, est. $225,000, 0.3 mi. Lake Ontario State Parkway (Lowden Point Rd.), LOSP. 53-3, Monroe Co.;
Good Roads Engr. & Contg. Co., Inc., Burne Ave., Wantagh, N. Y., LB $358,431, est. $370,000, 9.07 mi. Captree State Parkway and Sagtikos State Parkway, CAP. SP. 53-1, SAG. SP. 53-1, Suffolk Co.;
S. J. Groves & Sons Co., Empire Bldg., Syracuse, N. Y. LB $5,569,575, est. $5,921,000, 2.93 mi. Acc., 6.36 mi. Thy., New York State Thruway-Mohawk Sect.-Sub. 9 (Utica West City Line-Burch Creek); No. Genesee St., Interchange; Leland Ave. and Schuyler Dyke Rd. M.T. 53-11, S.T. 53-24, Herkimer and Oneida Counties;
Hogeboom & Campfield, Inc., New Hartford, N. Y., LB $1,644,792, est. $1,885,000, 8.14 mi. Middleburg-East Cobleskill-Shad Point S.H. 9241, Howes Cave-Cobleskill, SH 5286, FARC. 53-63, Schoharie Co Bids June 25. CD 6/3.
▲ NEW YORK—Jones Beach State Parkway Auth., Belmont Lake State Park, Babylon,
Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y. CA $2,491,000, Contr. 1, grading, drainage, paving, grade separations, etc. for Southern State Parkway imprvt. from the Belt Parkway (Cross Island Parkway) to Dogwood Ave., Nassau Co. Bids June 23. CD 6/5.
▲† Tully & DiNapoli, Inc., 89-31, 161 St., Jamaica 32, N. Y. CA. $1,218,976, crane tracks, Dry Dock No. 5, New York Naval Shipyard, NOY 74796, BROOKLYN, N. Y. P. Wks. Office, Third Naval Dist., 90 Church St., New York 7, N. Y.
▲ New Jersey and Pennsylvania—Delaware River Port Auth., Administration Bldg., Bridge Plaza, Camden, N. J.
Newton A. K. Bugbee & Co., Inc., 54 Oakland St., Trenton, N. J., CA. $129,886, Contract 4A;
Fehlhaber Pile Co., Inc., 205 E. 42 St., New York, N. Y., CA. $3,210,620 Contract No. 1, river piers for Delaware River Bridge. Bids June 22. CD 6/4.
PENNSYLVANIA—State Hy. Dpt., N. Office Bldg., Harrisburg,
J. Robert Bazley, Inc., P.O. Box 117, Pottsville, Pa., CA $793,207, widen 4.01 mi. pavement with crushed aggregate base and bit. surf. new and existing pavement to 50 ft. wide; extend 2 structures and 2 rein.-con. bridges of Black Creek and branch of Black Creek, U. S. 309, Luzerne Co. Bids June 12. CD 6/17.
Corson & Gruman Co., 33 and K St. N. W., Wash., D. C. LB, $474,799, paving roadways E. Capitol St. from 52 St. to Southern Ave.; Southern Ave. from E. Capitol to 63 Sts; and 63 St. from Southern to Eastern Aves, WASH., D. C. Govt. of D. C. Dir. Hwys., 499 Pa. Ave. N. W., Wash., D. C. Bids June 15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ John A. Johnson & Sons, Inc. 303 41 St., Brooklyn 32, N. Y. LB $2,183,000, Base Bid 1; $2,153,500 Base Bid 2, general constr.;
Burns Bros., Hunt Dr., Fayetteville, Syracuse, N. Y. LB $364,000, plumbing etc. for Syracuse HOUSING Proj. No. NY-1-2, bounded by Otisco, Wyoming, Fabius, Tioga, Tully and Oswego Sts., SYRACUSE, N. Y. Syracuse Housing Auth., 301 E. Washington St., Syracuse 2, N. Y. Bids June 16. CD 5/19.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

▲ The Trimble Co., 1719 Penna Ave., Pittsburgh, Pa. CA $1,000,000. 2 story bsmnt., 121x186 ft. brick, block, steel, TELEPHONE OFFICE, GREENSBURG, PA Bell Telephone Co., 416 Seventh Ave. Pittsburgh, Pa. Press C. Dowler, 130 Seventh St., Pittsburgh, Pa., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

▲ Ala., Birmingham—B.A. After 8/1—Jefferson Co., Court House, sewage disposal plant. $2,700,000. CD 11/11/49.

BIDS ASKED—BUILDINGS

Ala., Mobile—SCHOOL—B.A. 7/14—Mobile Co. Bd. Educ., Court House, Central Junior High School, $835,000. Platt Roberts & Co., Merchants National Bank, archts. Extended date. CD 5/26.
▲ Va., Princess Anne—HIGH SCHOOL—B.A. 7/16—Princess Anne Co. School Bd., Princess Anne, 2 story structural steel, masonry Princess Anne County High School and concrete stadium, Thalia, $2,750,000. Plans deposit $150. Oliver & Smith, 409 Yarmouth St., Norfolk, archts. Fraioli-Blum-Yesselman, 1214 Granby St., Norfolk, engrs. CD 6/18, under LB.
S. C., Marion—HIGH SCHOOL—B.A. 7/21—School Dist. 1, Marion Gurley Street High School. $500,000. Plans deposit $25. W. D. Harper & Sons, Florence, archts. CD 4/15.
▲ Ga., Macon—HOSPITAL—B.A. 8/6—City, hospital. $6,000,000. Extended date. Associated Hospital Architects, First Natl. Bank Bldg., archts. CD 6/16.

SOON LETS CONTRACT—BUILDINGS

Fla., Miami Beach—APARTMENT—Monterrey Enterprises, Inc., 235 Lincoln Rd., soon lets contract apartment, $400,000. Norman M. Giller, 1574 Washington Ave., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

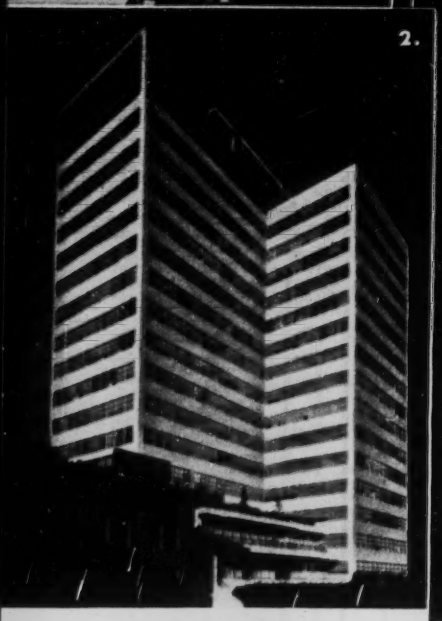
C. Y. Thomason Co., P. O. Box 232, Greenwood, S. C., LB, $563,286, sanitary sewer imprvs., AUGUSTA, GA. City, City Hall, Augusta, Ga. Bids June 18. CD 6/8.
† Paul Smih Constr. Co., 310 N. Bome Ave., Tampa, Fla., CA, $971,968, technical bldg., at Missile Test Center, Patrick Air Force Base, COCOA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids May 7. CD 5/13, under LB.
ALABAMA—State Hy. Dpt., Montgomery,
Scott Constr. Co., Thomasville, Ga., LB $331,254 0.555 mi. bridges Baldwin Co.;
H. C. Jordan, Ozark, Ala., LB, $83,191, bridge 0.144 mi. bridge Monroe Co.;
Goodwyn & Murphree, Troy, Ala., LB, $95,147, bridge Madison Co.;
Norell Contg. Co., Georgiana, Ala., LB, $177,553 bridge 0.146 mi. Pickens Co. Bids June 19. CD 5/27.
▲ ALABAMA—State Hy. Dpt., Montgomery,
Tuscaloosa Contg. Co., Tuscaloosa, Ala., LB, $65,320 roadway 4.296 mi. Perry Co.; LB $76,390 4.797 mi. roadway, Chilton Co.; LB $81,730. roadway 5.635 mi. Monroe Co.;
Vandigriff Constr. Co., 4708 N. Court St., Montgomery, Ala., LB $73,139, roadway 8.814 mi. Coose Co.;
J. B. Maynard, Alexander City, Ala., LB, $62,695 roadway 4.561 mi. Cleburne Co.;
Dunn Constr. Co., 2508 3 Ave. N., Birmingham, Ala., LB $132,696, roadway 17.922 mi., Madison Co.;
Raley Contg. Co., Aberdeen, Miss., LB, $239,114, roadway 8.572 mi. Monroe Co.;
A. L. Crow Constr. Co., Selma, Ala., LB $166,264 roadway 10.117 mi. Monroe Co.;
B. F. Williams Constr. Co., Ozark, Ala., LB $74,179 roadway 8.956 mi. Dale Co.;
E. J. Cobb Constr. Co., 1925 Mobile Rd., Montgomery, Ala., LB $94,065, 12.807 mi. roadway, Hale Co.;
Laidlaw Contg. Co., Wolf Ridge Rd., LB $108,667. 2.408 mi. roadway Mobile Co.;
Scott Constr. Co., Thomasville, Ga., LB, $278,642 roadway 0.955 mi. Baldwin Co. Bids June 15. CD 5/27.
Ashburn & Gray, Huntsville, Ala., CA, $151,260 1953 street imprvs., ATHENS, ALA. City, Athens, Ala. Bids June 22.
Deep Delta Dredging Co., Chalmette, La. LB $78,144. navigation lock, Plaquemines Parish, LOUISIANA. State Dpt. P. Wks., State Capitol, Baton Rouge, La. Bids June 22. CD 6/10.
LOUISIANA—State Hy. Comn., Highway Office Bldg., Baton Rouge,
Flenniken Constr. Co., Lake Charles, La. CA $590,803. Chauvin-Boudreaux Canal, State Rte. 79, Terrebonne Parish. CD 5/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ John W. Daniels & Co., P.O. Box 458, Danville, Va. LB $1,117,412. South Norfolk HIGH SCHOOL, SOUTH NORFOLK, VA. South Norfolk School Bd.,

1.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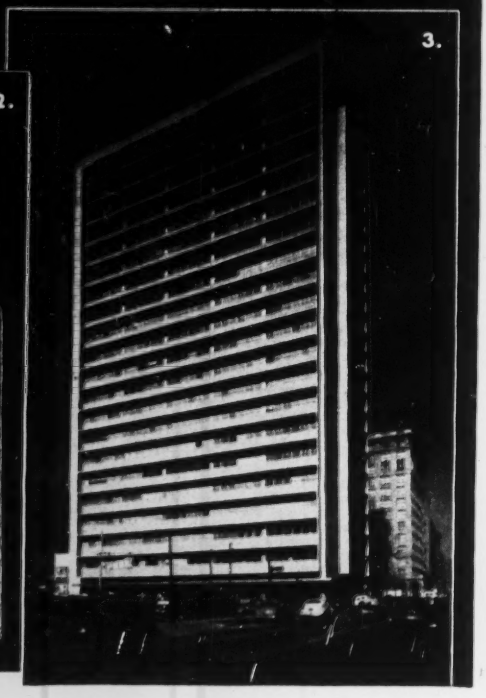

3.

Modern Buildings That Will Never Grow Old

Pictured above are three of the newest and finest office buildings in America . . . Lever House in New York City, the First National Bank of Tulsa, and the Melrose Building in Houston. Each of these splendid monuments to free enterprise has been carefully designed and constructed to avoid future obsolescence and withstand the ravages of time.

One of the features common to these buildings is the fact that each has been built with Q-Floor, the strong, lightweight, steel, cellular structural floor . . . the only construction system that provides easy electrical access to every 6-inch area of the entire exposed floor. They will never become obsolete for a lack of ability to keep pace with the increasing use of movable partitions and modern electronic office equipment, because wiring layout changes and additions will always be available at maximum speed and minimum cost.

For other excellent reasons why more and more fine new buildings everywhere boast Q-Floor construction, see the opposite page.

1. Lever House—New York City
Skidmore, Owings & Merrill—Arch.
George A. Fuller Co.—Contractor

2. First National Bank of Tulsa
Carson & Lundin—Architects
Manhattan Construction Co.—Contr.

3. Melrose Building—Houston
Lloyd & Morgan—Architects
Telleapen Construction Co.—Contr.

Robertson

Q-Floor

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pa.

Offices in All Principal Cities **World-Wide Building Service**

Municipal Bldg., South Norfolk, Va. Bids June 25. CD 6/3.

Daniel Constr. Co., 429 Main St., Greenville, S. C. LB $705,000, BAKERY, ANDERSON, S. C. American Bakeries Co., 10 Pryor St. Bldg., Atlanta, Ga. Bids June 23. CD 6/2.

▲ **Mion Constr. Co.**, 377 Techwood Dr., N. W., Atlanta, Ga., CA $1,679,235, CLASSROOM-ADMIN. BLDG. at Atlantic Div. of University of Georgia, ATLANTA, GA. Bd. Regents, University System of Georgia, 20 Ivy St. S. E., Atlanta, Ga. Bids June 10, awarded June 25. CD 6/12 under LB.

Williams Constr. Co., 13 St., Columbus, Ga., LB, $628,440 Negro Elementary SCHOOL, BUENA VISTA, GA. Marion Co. Bd. Educ., Buena Vista, Ga. Bids June 23. CD 5/27.

Williams Constr. Co., 1032 13 St., Columbus, Ga., CA, $507,000, Carver Heights Negro High SCHOOL addn. Columbus, GA. Muscogee Bd. Educ., Columbus, Ga. Bids June 16. CD 6/23.

A. C. Samford, Inc., P. O. Box 1229, Albany, Ga., LB $507,341 HOSPITAL, COVINGTON, GA. Newton Co. Hospital Auth., Covington, Ga. Bids June 23. CD 5/26.

W. M. Crawford, 306 Brown Ave., Columbus, Ga., LB, $798,000, White High SCHOOL, NASHVILLE, GA. Berrien Co. Bd. Educ., Nashville, Ga. Bids June 23. CD 5/26.

Knox Corp., Thomson, Ga., Owner Builds, $750,000, 100 RESIDENCES, WARNER ROBINS, GA.

▲ **Chas. E. Commander & Co.**, 325 W. Forsyth St., Jacksonville, Fla., Owner Builds, $1,500,000, 180 RESIDENCES, JACKSONVILLE, FLA.

Dyson & Co., P. O. Box 22, Pensacola, Fla., LB, $647,000, JAIL, PENSACOLA, FLA. Escambia Co. Pensacola, Fla. Bids June 23. CD 5/20.

Jack Culpepper, 114 E. 5 Ave., Tallahassee, Fla., CA, $893,265, DEMONSTRATION SCHOOL, Florida State University, TALLAHASSEE, FLA. State Bd. Control Admin., University of Florida, Gainesville, Fla. Bids June 18. CD 6/25, under LB.

▲ **Nasrallah & Johns Builders, Inc.**, Knights Ave., Tampa, Fla. Owner Builds. $1,000,000. 121 RESIDENCES, TAMPA, FLA.

▲ **H. K. Ferguson Co.**, Clarke Bldg., Birmingham, Ala. CA. Est. $3,000,000. paper MILL addn., FOLEY, ALA. Buckeye Cellulose Co., Foley, Ala.

G. E. Bass & Co., P. O. Box 1033, Jackson, Miss. LB $449,033. PLANT for Erie Resistor Corp. Erie, Pa., HOLLY SPRINGS, MISS. Bd. Supervs. Marshall Co., Holly Springs, Miss. Bids June 22. CD 6/8.

▲ **Jackson Municipal Separate School Dist.**, 256 E. Griffith St., Jackson, Miss., received no bids June 25, Robinson Road High School, $1,000,000; Woodrow Wilson Avenue High School, $1,000,000, JACKSON, MISS. CD 6/8.

▲ **Marvin K. Barry**, Commercial Union Bank Bldg., Nashville, Tenn. Owner Builds. $1,500,000. 152 RESIDENCES, NASHVILLE, TENN.

C. B. Kelley & Co., 3rd Natl. Bank, Nashville, Tenn. Owner Builds. $600,000. 68 RESIDENCES, NASHVILLE, TENN.

A. J. Coleman, 5000 Gallatin Rd., Nashville, Tenn. Owner Builds. $500,000. 57 RESIDENCES, NASHVILLE, TENN.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ O., Cleveland—RAPID TRANSIT SYSTEM—B.A. 7/17—At office Dpt. Purch. & Stores of Cleveland Transit System, 1404 E. 9th St., earthwork, drainage, pavement and structures (incl. two rein.-con. overpasses, replacement of the Detroit Ave. Bridge, retaining walls and other misc. structural work) from the Cleveland Union Terminals Bldg. to intersection of New York Central and Nickel Plate Railroads at about W. 102 and Detroit Ave. (Rapid Transit Contr. S-4) $3,650,000. CD 9/11.

O., Columbus—B.A. 7/28—City, City Hall, County Line Bridge spanning Hoover Dam, Delaware Co. source of city's new water supply. $800,000. Plans deposit $15. CD 9/7/43.

▲ OHIO—B.A. 7/29—Ohio Turnpike Comm., 139 E. Gay St., Columbus, Zone 15.

Fulton Co.—Contr. C-51, one rein.-con. culvert and four steel beam bridges of four spans each supported on rein.-con. abutments and bents, the abutments for bridges to be on steel bearing piles and bents to be on spread footings, incl. grading, drainage structures and paving approx. 3.8 mi. in Constr. Sect. 51 of Ohio Turnpike Proj. No. 1, from point approx. three tenths of a mi. east of Brigham-Fraker Rd. at Turnpike Centerline Station 1108 plus 00 and extending eastwardly to Turnpike Centerline Station 1304 plus 00, constr. and furnish engineer's office bldgs. and facilities on or near the site of the work.

Contr. C-52, eleven steel beam bridges of from three to five spans each supported on rein.-con. abutments and bents, the abutments for bridges and bents for one bridge to be on steel bearing piles and bents for ten bridges to be on spread footings, incl. grading, drainage, structures and paving approx. 4.2 mi. in Constr. Sect. 52 of Ohio Turnpike Proj. No. 1, from point approx. one-third of a mi. west of Heller-Lyons Rd. at Turnpike Centerline Station 885 plus 72 and extending eastwardly to Turnpike Centerline Station 1108 plus 00, furnish engineer's office and laboratory trailers and facilities at or near the site of the work.

Fulton and Lucas Counties—Contr. C-50, three rein.-con. culverts and seven steel beam bridges of from three to four spans each supported on rein.-con. abutments and bents, abutments for bridges and bents

for one bridge to be on steel bearing piles and bents for six bridges to be on spread footings incl. grading, drainage, structures and paving approx. 4.1 mi. in Constr. Sect. 50 of Ohio Turnpike Proj. No. 1, from point approx. ½ mi. east of Brailey Rd. at Turnpike Centerline Station 1304 plus 00 in Fulton Co. and extending eastwardly to Turnpike Centerline Station 135 plus 72.91 in Lucas Co. furnish engineer's office and laboratory trailers and facilities at or near the site of the work. Plans deposit $5. CD 1/15/53, under Streets and Roads.

BIDS ASKED—BUILDINGS

▲ O., Youngstown—HIGH SCHOOL—B.A. 7/17—Bd. Educ., 20 W. Wood St., Chaney High School (West side). $1,000,0000. Plans deposit $50. Morris W. Scheibel & Wilbert H. Shaffer, Realty Bldg., archts. CD 12/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15.

Fort Pitt Bridge Works, 212 Wood St., Pittsburgh 22, Pa., CA **$364,732,** Contr. M-4A, sale, incl. delivery, of fabricated structural steel and other appurtenant steel items, incl. 2,665,400 lb. fabricated structural steel; 119,600 lb. structural expansion and/or contraction joints for four-twin and seven single bridge structures of from three to five spans each in Constr. Sects. C-11 and C-12 in Design Sect. D4, of Ohio Turnpike Proj. No. 1, Portage Co.; LB **$164,817,** Contr. M-6A, sale, incl. deliver of fabricated structural steel and other appurtenant steel items, incl. 1,310,000 lb. fabricated structural steel; 45,700 lb. structural expansion and/or contraction joints for one twin and three single-bridge structures of from three to six spans each in Constr. Sect. C-16 in Design Sect. D-6 of Ohio Turnpike Proj. No. 1, Summit and Cuyahoga Counties. Bids June 19. CD 6/9.

▲ OHIO—State Hy. Dpt., State Office Bldg., Columbus,

V. N. Holderman & Sons, Inc., 890 Oakland Park St., Columbus, O., CA **$3,844,531,** est. $4,160,900, relocating 9 mi. Ohio Rte. 120 Wood Co.

▲ **National Eng. & Contg. Co.,** W. 4 St., and Central Ave., Cleveland, O. CA **$1,364,425,** est. $1,250,000. reconstr. W. 25 St. Bridge over Train Ave., incl. 100 ft. paving at each end, CLEVELAND, O. City, City Hall, Cleveland 14, O. John Heffelfinger, city bridge engr. Awarded June 10. CD 3/13, under LB.

▲ **Anderson Bros., Corp.,** 707 N. Drennan St., Houston, Tex., CA., Est. **$6,000,000.** 117 mi. sect. 16 in. pipe line to carry gasoline and fuel oil from East Chicago Ind. to Detroit via, Toledo, O., INDIANA, OHIO, MICHIGAN. Wolverine Pipe Line Co., 11 W. 42 St., New York 36, N. Y. CD 2/25.

† **Moellering Constr. Co.,** 241 Murray St., Fort Wayne, Ind., CA. Approx **$500,000,** extending s.w. runway at Baer Field, 1600 ft., and two taxistrips of concrete, Fort WAYNE, IND. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids June 19. CD 6/1.

▲† **Traylor Brothers, Inc.,** Station B, Box 66, Evansville 12, Ind., CA. **$1,950,000** airmen's dormitories and mess and administration bldgs.;

Geo. Sheaf & Co., 449 Neilston St., Columbus 3, O. CA. **$85,200.** Ammunition storage, igloos at air force base, Bunker Hill, PERU, IND. Ninth Naval District, Bldg. 1-A, Great Lakes, Ill. CD 1/7.

▲† **Jos. A. Bass Co.,** Sexton Bldg., Minneapolis, Minn. CA **$1,912,300.** 250x370 ft. maintenance hangar at Bunker Hill Air Force Base, PERU, IND. Dpt. Navy, Great Lakes, Ill. CD 1/7.

† **Alvey Ferguson Co.,** 75 Disney St., Cincinnati, 9. O., LB. **$383,173,** conveyor system at U. S. Post Office Annex, Proj. 11-326, CHICAGO, ILL. General Services Admin., P. Bldgs. Service, General Service Bldg. Wash., D. C. Bids June 19. CD 5/22.

WISCONSIN—State Hy. Comn., State Office Bldg., Madison,

Phillip C. Kaiser, Portage, Wis., LB, **$99,594** Contract 1, grading 3.821 mi. Colfax-East County Line Rd., S.T. Hy. 40, Proj. S 058 (4), Dunn Co.; LB, **$210,946,** Contract 1, base course 4.786 mi. Crandon-Argonne Rd., S.T. Hy. 32 and 55, Proj. T 0231 (5), Forest Co.; LB, **$79,519,** Contract 1, base course 1.965 mi. Somerset-Osceola Rd. S.T. Hy. 35, Proj. T 028-2 (7) and T 028-3 (3), St. Croix and Polk Counties;

J. R. Griffith Co., 1500 9 St., Racine, Wis., LB, **$324,392,** Contract 1, grading, ballast 4.237 mi. Wausau-Merrill Road, U. S. Hy. 51, Proj. F 6801 (7) and F 05-3 (17), Marathon Co.;

Rein & Schultz Inc., 119 E. Washington Ave., Madison, Wis., LB **$177,840** Contract 1. c.conc., b.conc. 0.907 mi. Main St. (Village of Ellsworth) U. S. Hy. 10 Proj. T 019-1 (11) Pierce Co.;

Payne & Dolan of Wisconsin Inc., 735 N. Water St. Milwaukee, Wis., LB, **$544,783,** Contract 2, b.conc. 7.919 mi. The C.T.H. "K" North County Line Rd., S.T.H. 38, Proj. T 074-1 (4) Racine Co. Bids June 23. CD 6/5.

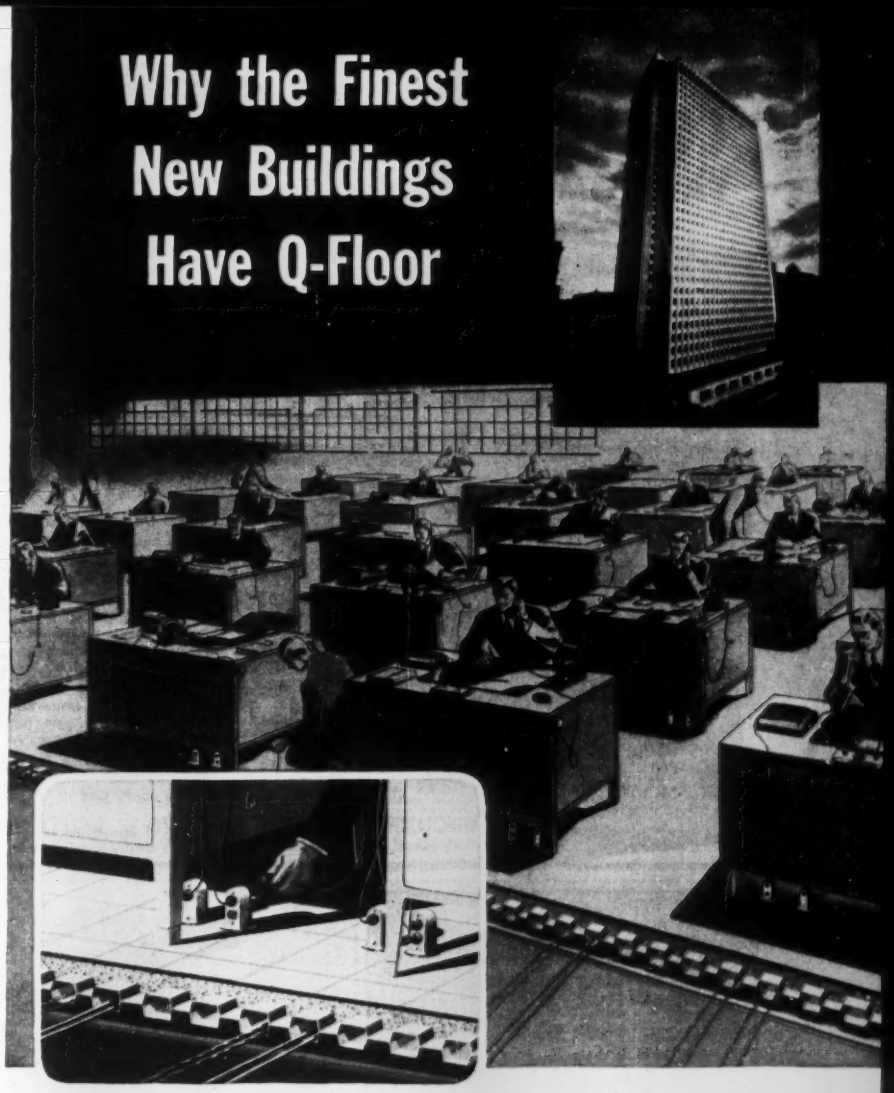
BUILDINGS

LOW BIDS AND CONTRACTS

Linden Development Corp., 2043 Cleveland Ave., Columbus, O. Owner Builds. **$513,000.** fifty-seven 1½ story frame DWELLINGS on 700 and 800 blocks Longview Ave.; 3,000 and 3,100 blocks of Eisenhower Rd., COLUMBUS, O.

▲ **Huber, Hunt & Nichols, Inc.,** Speedway, Indianapolis, Ind., CA Approx. **$2,000,000.** brick on steel FACTORY addn. east of plant on Wisconsin Blvd., one sect. encloses approx. 150,000 sq. ft.; another sect., 2 story, 60,000 sq. ft. for engineering depot, tunnel to connect present plant with new bldg., mfg. auto-

Why the Finest New Buildings Have Q-Floor



Beyond the fact that Q-Floor offers the greatest electrical availability of any structural floor in existence (as indicated on the page opposite), there are several other decisive reasons why it has become a part of the finest new buildings in America.

Q-Floor saves construction time and money. The steel cellular units come on the job cut to fit so that two men can lay 50 square feet in one minute. In the case of the U.S. Steel-Mellon Bank Building in Pittsburgh, forty floors were installed in four months. Because Q-Floor provides a perfect platform for work and storage, 1,000 men were able to operate on the job without interfering with each other. Q-Floor saves steel as a result of its favorable ratio of weight to strength. Footings and structural steel can be lighter than with ordinary construction. Moreover, Q-Floor saves drafting room time since completely predetermined wiring and mechanical layouts are not necessary. Because no combustible forms and shoring are required, there has never been a construction fire on a Q-Floor job. Add these features to low cost on wiring changes in the years to come, and it's easy to see why Q-Floors are a feature of America's finest new buildings.

The Robertson Technical Library contains data books on Q-Floor which should be part of every architectural and engineering library. Write to us.

Shown above: U. S. Steel-Mellon Bank Bldg.—Pittsburgh
Harrison & Abramowitz—Architects
Turner Construction Co.—Contractor

Robertson

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In England: Robertson Thain Ltd., Ellesmere Port, Cheshire

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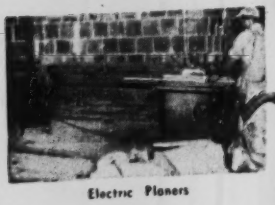
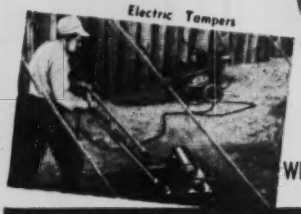
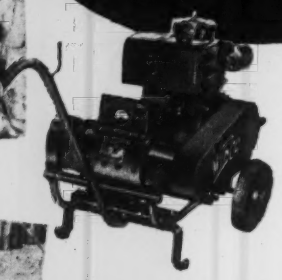


Electric Planers



Electric Tampers



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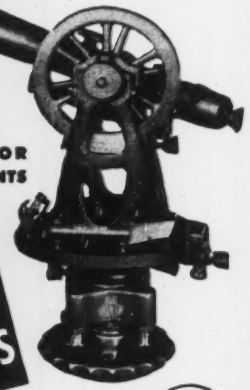

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motive parts, DAYTON, O. General Motors Corp., Moraine Products Div., 1420 Wisconsin Ave., Dayton, O. CD 12/19.

▲ **Airway Constr. Co.**, Callahan Bldg., Dayton, O. CA. $1,000,000. SHOPPING CENTER to serve 2,000 unit Page Manor Housing Proj. with 20 stores, Airway and Spinning Rds., DAYTON, O. Page Manor Corp., c/o George H. Beverley, 5240 Brenton Dr., Dayton, O. Edwin Gerber, 1180 Raymond Blvd., Newark, N. J., archt.

▲ **Knowlton Constr. Co.**, 106 N. Main St., Bellefontaine, O., LB. $2,046,000. general constr.;

Lieb Jackson Co., 337 S. High St., Columbus, O., LB. $720,790. plumbing, heating and ventilating for Ohio State Training SCHOOL BLDGS., MARION, O. Dpt. P. Wks., Clyde L. Moyer, dir. Ohio Dept. Bldg., Columbus, O. Bids June 25. CD 6/9.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA. $2,500,000. 2 story, 270x480 ft. RESEARCH CENTER with 1 story PILOT PLANT at rear, brick with aluminum panels at 2nd story level, TOLEDO, O. Owens Illinois Glass Co., Ohio Bldg., Toledo, O. Holabird & Root & Burgee, 180 N. Wabash Ave., Chicago, Ill., archts.

▲† **Ferro Concrete Constr. Co.**, 203 W. 3 St., Cincinnati, O., CA $1,030,700, grading, underground foundations and adjuncts to process bldg.;

The Marley Co., Inc., 222 W. Gregory St., Kansas City, Mo., CA $200,800, cooling towers for Gaseous Diffusion PLANT (Subcontractors under Peter Kiewit Sons' Co., P. O. Box 268, Portsmouth, O.) for Atomic Energy Comn. 1901 Constitution Ave., N. W. Wash. 25, D. C. PIKETON and WAKEFIELD, O. CD 8/13/52 under CA.

▲ **Oak Hills Development Co.**, 5212 Peach Tree Lane, Wichita, Kan. Own Forces. $5,000,000. 500 HOMES, sewer and water lines, GARY, IND.

▲ **Shadeland Realty**, 3301 Shadeland Ave., Indianapolis, Ind. Owner Builds, $2,509,000 200 HOMES, INDIANAPOLIS, IND.

▲ **Meadow View Homes, Inc.**, 43 and Arlington Ave., Indianapolis, Ind. Owner Builds, $1,250,000 100 HOMES, INDIANAPOLIS, IND.

The Regent Company, 6208 College Ave., Indianapolis, Ind. Owner Builds, $450,000, group of HOMES in Christian Park, INDIANAPOLIS, IND.

Ball Brothers Co., Muncie, Ind. Owner Builds, $700,000, glass TANK Imprvs., MUNCIE, IND. CD 1/9/45.

T. & S. Constr. Co., P. O. Box 485, Centralia, Ill. LB, $344,989 brick, Haydite blocks, concrete central SCHOOL, CENTRALIA, ILL. Bd. Educ. School District 135, Marion, Clinton, Jefferson and Washington Counties, W. E. McAlister, supt. Schools, Centalia, Ill. Bids June 17. CD 6/12.

▲ **N. J. Rizzo, Inc.**, 815 Devon Ave., Park Ridge, Ill. Owner Builds. $2,500,000, 170 HOMES in Cumberland-Higgins Rd. area, CHICAGO, ILL.

▲ **Marquette Building Corp.**, 6283 Archer Ave., Chicago, Ill. Owner Builds. $1,500,000. 150 HOMES on south side, CHICAGO, ILL. John Bartolomeo, 10828 So. Western St., Chicago 43, Ill., archt.

▲ **Power Constr. Co.**, 212 S. Marion St., Oak Park, Ill. LB. $1,260,000, SCHOOL, Oakton and Dodge Sts.; Washington Grade School, Main and Ashland Sts., EVANSTON, ILL., Bd. Educ., 1323 Hinman Ave., Evanston, Ill. Bids June 23. CD 6/9.

▲ **Arnold Lies Co.**, 1515 New York Ave., Aurora, Ill. CA. $1,000,000 Junior and Senior HIGH SCHOOL with "Mooseheart" compound, MOOSEHEART, ILL. Loyal Order of Moose, Mooseheart, Ill. Bids June 9, awarded June 22. CD 5/20.

▲ **Harris Constr. Co.**, 110 S. Dearborn St., Chicago 3, Ill. Owner Builds. $2,000,000. 150 HOMES in area of Rte. 58 and Harlem St., MORTON GROVE, ILL. Awarded June 17.

▲ **Thiele Constr. Co.**, 24145 Little Mack St., St. Clair, Mich. Owner Builds. $4,000,000. St. Clair Manor, 200 brick ranch HOMES 40 acre subdivision, Little Mack, between 10 and 11 Mile Rds., ST. CLAIR, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Kan., Kansas City**—B.A. 7/30—Wyandotte Co., rebuild viaduct at Kaw River. $1,000,000. B. M. Browne, co. engr.

BIDS ASKED—BUILDINGS

Mo., Sullivan—SCHOOL—B.A. 7/14—Bd. Educ., Consolidated School Dist. 2, Franklin Co., 1 story, 246x121 ft., brick, masonry, concrete, steel elementary school. Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis, Zone 1, archts. CD 6/16.

SOON LETS CONTRACT—BUILDINGS

Colo., Denver—HOSPITAL—Lamb Memorial Hospital Assoc., 1560 Humbolt St., soon lets contract 4 story, bsmnt., 36x136 ft., brick, structural steel, hospital addn. $300,000. Wheeler & Lewis, 224 Commonwealth Bldg., engrs. and archts.

▲ **Kan., Fort Scott**—HOSPITAL—B.A. 7/8—Mercy Hospital, Fort Scott, soon lets contract hospital. $2,000,000. Schmidt-McVay & Peddie, 1832 E. 2 St., Wichita, archts. CD 6/23.

▲ **Mo., Kansas City**—FACTORY—Hall Bros., 25 and Grand Sts., Kansas City, Mo., soon lets contract 8 story, 329x361 ft. factory, $6,000,000. Welton Becket & Assoc., 1114 Grand Ave., Kansas City, Mo., engrs.-archts. CD 6/19.

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HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **List & Clark Constr. Co.**, Railway Exchange Bldg., Kansas City, Mo., CA. $5,114,399, est. $4,091,865, earthwork, Stage 5, Fort Randall Reservoir Proj. Lake Andes, Inv. 25-066-53-242, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 16. CD 6/18, under LB.

† **Sherwood Constr. Co., Inc.**, Box 994, Wichita, Kan. LB. $114,891. relocating portion railway tracks Big Slough, Cowskin Floodway, incl. 116,000 cu. yd. excav., 170,000 cu. yd. levee embankment, Wichita and Valley Center, KANSAS. U. S. Eng., Box 61, Tulsa 2, Okla. Bids June 18. CD 6/3.

A. F. Reis Constr. Co., National Bank of Topeka Bldg., Topeka, Kan. CA. $206,265. telephone lines, Haddam, Morrowsville and Courtland, KANSAS. American Communications Co., Haddam, Kan. Bids June 23. CD 6/15.

OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, **Gragg Constr. Co.**, Henryetta, Okla., CA. $342,103, est. $406,189, grade separation U.S. 66 at 39 and May Sts., Oklahoma City, Oklahoma Co. Bids June 23, awarded June 24. CD 6/11.

▲ OKLAHOMA—State Hy. Dpt., Capitol, Oklahoma City, **Metropolitan Paving Co.**, 300 S. Indiana St., Oklahoma City 3, Okla., CA. $1,161,883, est. $1,255,514, 1.887 mi. four lane hy. U. S. 66, Oklahoma City, Oklahoma Co. Bids June 23, awarded June 24. CD 6/11.

Telephone Co-operative, Muleshoe, Tex., Own Forces. $100,000, unit of new rural pole telephone lines, Bailey Co., TEXAS. CD 1/14.

† **Robert E. McKee, General Contractor, Inc.**, Box 562, El Paso, Tex., LB $276,700. armanent electronics (KI) radio and instrument repairs shop, Inv. No. Eng-29-005-53-134, Biggs Air Force Base, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 18. CD 5/26.

† **U. S. Eng.**, Box 61, Tulsa 2, Okla. cancelled bids to have been opened Aug. 18, academic bldg., training squadron headquarters, operations bldg and training bldg., Harlingen Air Force Base, Inv. No. Eng-41-243-53-130, HARLINGEN, TEX est. $100,000-$500,000. CD 6/25.

Paul Wright Electric Co., 211 San Pedro St., San Antonio, Tex., LB $125,108, est. $110,000, relocation electric sub-station, Inv. No. E-41-133-53-84, FORT SAM HOUSTON, TEX. U. S. Govt., Bldg. 370, Purch. & Contg. Office, Fort Sam Houston, San Antonio, Tex. Bids June 22. CD 6/4.

† MONTANA—Bureau P. Rds., Dpt. Commerce, 324 P. O. Bldg., Missoula,
Kiely Constr. Co., Butte, Mont. CA $209,476. surf., bit. surf. 10.8 mi. Yellowstone Trail Hy., Proj. 8-G6, H2, 13, J7, Mineral Co. Bids June 19. CD 6/11.

† **Nilson-Smith Constr. Co.**, 812 S. Second St., Great Falls, Mont. LB $314,776, est. $296,226 150x1,700 ft. and 50x1,500 ft. asphaltic concrete and concrete extens. runway and taxiway at Gore Field, Eng-45-108-53-201, GREAT FALLS, MONT. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 23. CD 6/1.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,
Peter Kiewit Sons Co., 1950 South University St. Denver, Colo., CA, $234,251, est. $220,208 road mix asph. S 0014 (1) Eldorado Springs and Marshall S 0076 (1) west of Beethoud, C 07-0093-03 in city of Boulder. Boulder and Laramie Counties. Bids June 23. CD 6/15.

† **George A. Rutherford, Jr.**, Box 771, Albuquerque, N. M., LB $256,017, est. $300,009. two 2 story concrete frame dormitories, for Manzano Base, Serial No. Eng-29-005-53-139, ALBUQUERQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 18. CD 5/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sheehy Constr. Co.**, 1550 West Larpenteur Ave., St. Paul, Minn. CA $1,215,500. general contract HIGH SCHOOL, ANOKA, MINN. Bd. Educ., J. M. Wennerlund, clk., Anoka, Minn. Bids June 23. CD 5/27.

▲ **Emery Constr. Co.**, 21 and Sims Sts., Topeka, Kan. Owner Builds. $1,000,000. 132 HOMES, ST. JOSEPH, MO. Riddle Eng. Co., 1343 Prospect St., St. Joseph, Mo., engrs.

▲† **MacDonald Constr. Co.**, 1310 S. Grand Blvd., St. Louis, Mo. CA $1,808,236. rehabilitation, modification Bldg. No. 105 of Small Arms PLANT, 4300 Goodfellow Blvd., ST. LOUIS, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. CD 6/24, under LB.

▲ **John B. Gutmann Constr. Co.**, 1301 S. Vandeventer Ave., St. Louis 10, Mo. LB $3,138,000, general contract;
S. C. Sachs Co., Inc., 5540 West Park Ave., St. Louis 10, Mo. LB $449,500, electrical work;
McNamar Equipment Co., 6321 Olive Blvd., University City 5, Mo. LB $429,915, plumbing;
Natkin & Co., 5555 Manchester Ave., St. Louis 10, Mo. LB $951,783. heating, ventilating and air-conditioning for 5 story, bsmt., X-shaped HOSPITAL and CHAPEL (main block), 3 story, wings, 3 story CONVENT, BOILER HOUSE addn. to Firmin Desloge Hospital boiler house, connecting tunnel to that hospital, etc., ST. LOUIS, MO. Cardinal Glennon Memorial Hospital for Children, c/o Archdiocese of St. Louis, Most Rev. Joseph E. Ritter, archbishop, 3910 Lindell Blvd., St. Louis 8, Mo. Bids June 15. CD 5/14.

Fred Bopp Constr. Co., 9006 W. Swan Circle, St. Louis 21, Mo. CA. 1 story, 55x160 ft., brick, concrete WAREHOUSE, rear of 330 S. Newstead Ave., ST.

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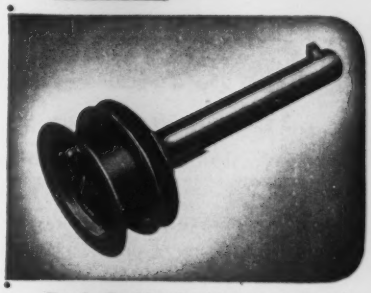

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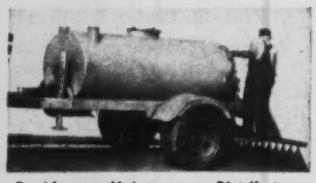

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LOUIS, MO. A. G. Brauer Supply Co., 2100 Washington Ave., St. Louis 3, Mo.

Wm. H. & Nelson Cunliff Co., 3320 Lindell Blvd., St. Louis 3, Mo. CA 1 story, 51x71 ft., brick, steel, concrete masonry PLANT addn., 1728 Kosciusko St., ST. LOUIS, MO. Monsanto Chemical Co., 1700 S. Second St., St. Louis 4, Mo.

▲ Rust Engineering Co., Exchange Bldg., Birmingham, Ala. CA. Est. $1,000,000. design and construct food storage WAREHOUSE, WICHITA, KAN. The Kroger Co., 99 Wall St., New York, N. Y. CD 5/12.

▲ Denver Plumbing & Heating Co., 1810 Blake St., Denver, Colo., CA, $1,000,000 plumbing and heating; Brukhardt Steel, 869 S. Broadway, Denver, Colo., CA, $800,000, steel frame, for OFFICE and DENVER CLUB BLDG., 510 170 St., DENVER, COLO. John D. and Clint W. Murchison, 1201 Main St., Dallas, Tex. Awarded June 15. CD 4/24, under CA.

Robert E. McKee, General Contractor, 2708 Inwood St., Dallas, Tex., CA. $839,500, Memorial HOSPITAL STAFF BLDG., DALLAS, TEX. Dallas Co., Court House, Dallas, Tex. Bids June 4. CD 6/10, under LB.

† R. D. Lowman & Co., 1617 E. Missouri St., El Paso, Tex., LB $568,495, est. $400,000-$725,000, four material LABORATORIES, paving and utilities, etc. Fort Bliss, Serial No. Eng-29-005-53-143, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 17. CD 5/27.

† King Constr. Co., Box 29, Texarkana, Tex. LB $177,211, est. $300,000-$550,000, WAREHOUSES addns., Red River Arsenal, Lone Star Ordnance Div., Inv. No. Eng-34-066-53-125, TEXARKANA, TEX. U. S. Eng. Box 61, Tulsa 2, Okla. Bids June 18. CD 5/27.

McNichol Constr. Co., 33 S. Fox St., Denver, Colo., LB, $376,966, general contract Johnson Grade SCHOOL addn., DENVER, COLO. School District No. 1, Denver Co., 414 14 St., Denver, Colo. Bids June 17. CD 6/3.

▲ Ball Constr. Co., Box 1047, San Antonio, Tex. CA, $2,274,859, 300 dwelling units in HOUSING Project Colo. 1-13, between Broadway and Logan and 51 and 52 Aves., DENVER, COLO. Denver Housing Auth., 1449 Navajo St., Denver, Colo. Bids June 18. CD 6/3.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† Idaho—B.A. 7/23—Bureau Reclamation, Dpt. Interior, Palisades, relocation of Forest Road, Bear Creek Bridge and approaches, Palisades Reservoir, Palisades Proj., in Bonneville Co., on Bear Creek, tributary of south fork of Snake River about 4 mi. upstream from Palisades Dam and approx. 60 mi. southeast of Idaho Falls, Spec. DC 3988. CD 9/12/44, under Earthwork, Waterways.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

WASHINGTON—State Hy. Dpt., Olympia,
Peter Kiewit Sons Co., Longview, Wash., CA, $77,650 rein.-con. girder bridge to carry Highway 2-E over Hy. 1, together with grading, surf. and paving approaches, Lewis Co.

N. Fiorito Co., 844 W. 48 St., Seattle, Wash., CA, $462,506, twin rein.-con. girder bridges over N. P. railroad tracks on 0.096 mi. Hy. 1 south of Chehalis F.A.P. UBI 001-2 (10), Lewis Co. Bids June 23, awarded June 23. CD 6/10.

WASHINGTON—State Hy. Comn., Olympia,
P. L. Saddler, Wenatchee, Wash., CA, $398,501 clearing, draining, grading 3.819 mi. Hy. 1, Cowlitz River to Hy. 112-E F.A.P. No. I-001-2 (19) Unit 2, Lewis Co.;

D-H Paving Co., Vancouver, Wash., CA, $132,955, reconstr. roadway and bit. penetration macad. paving 4.644 mi. Hy. 12, Chinook to Megler, Pacific Co.; CA, $152,650, non-skid single seal tr. 72.6 mi. Hy. 9, 14, 21, I-X, 9-C and 13-A, Kitsap Lake to Port Gamble, et al, Pierce, Kitsap, Mason, Jefferson and Grays Harbor Co. Grand total $684,106. Bids June 23. CD 6/10.

▲† Parish Bros., P. O. Box 6, Benicia, Calif., and Harms Bros., 5261 Stockton Blvd., Sacramento, Calif. CA $1,147,086, runway strengthening, wid'n. Spec. 1780, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids May 20, awarded June 22. CD 5/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† Sound Constr. & Eng. Co., 1300 Aloha St., Seattle, Wash., LB, $473,523, est. $544,000, 132x201 ft., 100x61 ft., 180x201 ft. 60x60 ft., 20x60 ft., 122x144 ft. shop for transportation facility with 130x51 ft. dispatchers office at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., Hanford Operations Office, Richland, Wash. Bids June 23. CD 6/12.

▲ Dolph Jones, 2213 N. Proctor St., Tacoma, 7, Wash. LB, $1,167,000 general contract, women's WARD Western State Hospital, STEILACOOM, WASH. State Dpt. P. Institutions, Olympia, Wash. Bids June 23. CD 5/12.

▲ Midstate Constr. Co., Bank of America Bldg., Fresno, Calif. and Stolte, Inc., P. O. Box 1470, Monterey, Calif. LB $1,432,823. Tuberculosis HOSPITAL, FRESNO, CALIF. Fresno Co., Court House, Fresno, Calif. Bids June 23. CD 6/1.

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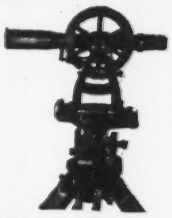

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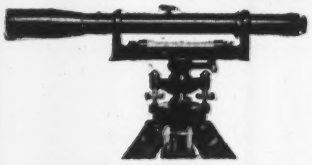

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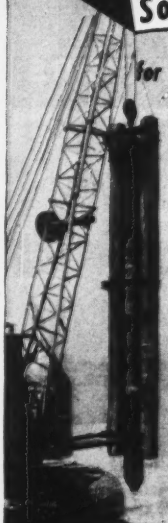

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CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Que., Tadousac—WHARF—B.A. 7/15—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstr. $350,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 3/27/52.

BIDS ASKED—BUILDINGS

Que., Montreal—POSTAL STATION—B.A. 7/22—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., postal station, Snowdon. $350,000. Plans deposit $100. E. A. Gardner, c/o owner, archt. CD 2/4.

Ont., Ottawa—TESTING LABORATORY—B.A. 7/29—Dpt. P. Wks., Hunter Bldg., new testing laboratory, Dpt. P. Wks., Tunney's Pasture. $650,000. Plans deposit $200. E. A. Gardner, c/o owner, engr. CD 2/9.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Aiken & MacLachlan Ltd., Hartsell St., St. Catherines, Ont. CA. $470,000, earthfill at bridge site Glen Ridge Bridge, ST. CATHERINES, ONT. City, H. H. Smith, clk., Municipal Bldg., St. Catherines, Ont. Bids Apr. 27, awarded June 22. CD 4/6.

BUILDINGS

LOW BIDS AND CONTRACTS

Hill-Clark-Francis Ltd., 7 9 Ave., Noranda, Que. CA. $311,000, concrete, steel, brick SCHOOL, ROUYN, QUE. School Commission, 303 Richard St., Rouyn, Que. M. Girard, 55 Main Ave., Rouyn, archt. CD 10/18/49.

Byers Constr. Co. Ltd., 5075 Western Ave., Montreal, Que. CA. Est. $800,000. 5 story, concrete, masonry WAREHOUSE, VILLE LASALLE, QUE. Distillers Corp. Ltd., 1430 Pell St., Montreal, Que. B. R. Perry, 1168 W. Ste. Catherine St., Montreal, Que., engr.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† ALASKA—B.A. 7/22—Alaska Road Comn., Dpt. Interior, Juneau, grading, drainage, 12 bridges on 41 mi. Richardson Hy. Sect. D. Plans deposit $10. W. J. Niemi, c/o owner, ch. engr. CD 3/3/52.

Proposed Projects——

WATER SUPPLY

▲ Calif., National City—City, City Hall $11,000,000 bond election, July 14, WW sys.

▲ Mont., Billings—City, City Hall, special election soon $2,450,000 revenue bond issue water plant imprvs., $725,000, transmission and distr. lines, $900,000, 4 reservoirs, $800,000. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. Ed. Waldo, city engr.

SEWERS, WASTE DISPOSAL

▲ Ala., Montgomery—City, City Hall, addnl. storm sewers, $4,755,000; sewage treatment plant in Catoma Creek area, $1,863,000.

▲ Miss., Hattiesburg—City, voted $885,000 bonds sanitary sewer imprvs.; storm sewers, $450,000.

▲ Tenn., Johnson City—City, sanitary sewage disposal sys. $1,000,000. Wideman & Singleton, P.O. Box 1878, Atlanta, Ga., consult. engrs. CD 4/16.

BRIDGES

▲ O., Dayton—City, City Hall, 4-lane structure, 6-lane piers, steel-girder type, with concrete deck Patterson-Riverside Bridge, blacktop surf., Riverside Dr. Extension. $1,530,000. Carl Shultheis, city engr. CD 11/28/45.

▲ TENNESSEE—State Hy. Dpt., Nashville, Marion Co.—bridge over Tennessee River between South Pittsburg and Whiteside. $1,000,000.

STREETS AND ROADS

▲ Ala., Montgomery—City, City Hall, widening Fairview Ave., $479,000; constr. 4-lane highway to connect Mobile and Troy Highway, $900,000.

▲ Colo., Denver—City and Denver Co., City and County bldg., defeated $1,850,000 bonds June 16, imprv. streets and hys. other public ways. CD 6/12.

▲ Okla., Oklahoma City—City, Ross Taylor, mgr., City Hall, and State Fair Assn., Fairgrounds, grading, drainage, streets, sewers at Fair Grounds. $1,250,000. Treat Eng. Co., Plaza Court Bldg., consult. engr.

▲ TENNESSEE—State Hy. Dpt., Nashville, Hamilton Co.—8.58 mi. four-lane hy. linking Dayton Blvd. and Bonny Oaks Dr. in city of Chattanooga, $900,000.

Knox and Anderson Counties—repave Solway Hy. from Knoxville to Oak Ridge, $240,000.

▲ ONTARIO—Dpt. Highways, Parliament Bldgs., Toronto, Belleville—dual express by-pass highway 10.7 mi. between Belleville and Trenton, two sections 5.2 miles and 5.5 miles. $1,000,000. CD 4/27/44.

(Continued on page 79)

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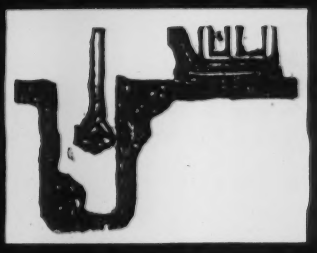

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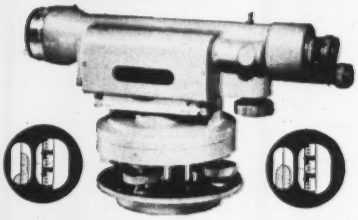

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(Continued from page 77)

EARTHWORK, WATERWAYS

▲ Quebec—Shawinigan Water & Power Co. Ltd., 600 Dorchester Rd. W., Montreal, Que., increase output of Rapid Blanc Plant, Trenche Plant, La Tuque Plant Hydro-electirc stations, on St. Maurice River, $10,000,000-$12,000,000. CD 6/12/47.

AIRPORTS

▲† Tex., Rockwell—AIR FREIGHT CENTER—City, B. A. Klutts, mayor, Airport Air Freight Center, $4,000,000; refrigerated cold storage bldgs. $850,000; general earthwork and grounds development in the freight center area, $150,000. J. M. Lloyds & Assoc., Tyler, consult. engrs. CD 6/3.

PUBLIC BUILDINGS

▲ Ark., Fayetteville—ANIMAL SCIENCE—University of Arkansas, Fayetteville, plans by Ginocchio, Cromwell & Assocs., Hall Bldg., Little Rock, animal science, $1,000,000. CD 1/8.

▲ Calif., Duarte—SCHOOL—Duarte School District, 1137 Central Ave., voted $300,000 bonds, an additional $980,000. from State, for Royal Oaks School. CD 4/29.

▲ Calif., Long Beach—RECREATION, EXHIBIT, etc.—City, 205 W. Broadway, plans by Kenneth S. Wing, 30 Linden Ave., recreation and exhibit bldg., adjacent to municipal auditorium. $2,500,000. CD 12/6/44.

▲ Calif., South Pasadena—SCHOOLS—South Pasadena School District, 1327 Diamond Ave., defeated $2,250,000 bonds June 9, schools. CD 5/19.

▲ Del., Newark—HIGH SCHOOL—Newark Bd. Educ., Newark, high school. $1,000,000.

Fla., Ocala—WOMEN'S PRISON—Florida State Improvement Comn., Caldwell Bldg., Tallahassee women's prison, $900,000.

▲ Ga., Brunswick—SCHOOL IMPRVS.—Glynn Co. Bd. Educ., Brunswick, voted bonds, school imprvs. $1,000,000.

▲† Ill., Ipava—PLANT—Atomic Energy Comn., Ipava, demolition and rough grading at Spoon River AEC plant. $20,000,000-$25,000,000 ($29,000,000 with equipment). W. A. Curtis, project engineer. Fluor Corp. Ltd., 2500 Atlantic St., Los Angeles, Calif., engr. and archt. CD 1/27/53, under Ill., Macomb.

▲ Mass., Weymouth—SCHOOL—Town, E. S. Mapes, supt. Schools, 84 Middle St., plans by Kilham-Hopkins, Greeley & Brodie, 9 Arlington St., Boston, masonry Central Junior High School, off Broad St., East Weymouth $2,000,000. CD 11/25.

▲ Miss., Jackson—HOSPITAL—State Bldg. Comn., New Woolfolk State Office Bldg., cerebral palsy hospital. $1,350,000.

▲ N. Y., Brooklyn—HIGH SCHOOL—Bd. Educ., 49 Flatbush Ave. Exten., Zone 1, plans by Beatty & Berlenbach, 32 Court St., Zone 2, 3 story Junior High School No. 258, 121-91 Macon St. $2,480,000. CD 8/5/48.

▲ Pa., Ardmore—SCHOOLS—Lower Merion School Dist., plans by Harbeson, Hough, Livingston & Larson, 117 S. 17 St., Phila., Junior High School, $1,000,000; plans by David Supowitz, 246 S. 15 St., Phila., elementary school addn., Gladwyne Sect., $300,000. CD 1/9 and 5/6.

▲ Pa., Phila.—GARAGES—Phila. Parking Auth., Packard Bldg., garage, Broad St. to 17 St., Arch and Sansom Sts., $4,650,000; garage, 7 to 10 Sts., $4,650,000. CD 5/28/51.

▲ S. D., Sioux Falls—SCHOOL—Bd. Educ., 107 High School Bldg., voted $1,600,000 bonds June 16, school constr. and imprvs. CD 9/8.

▲ Tenn., Knoxville—DORMITORY, etc.—University of Tennessee, Knoxville, girl's dormitory, $1,200,000; college of education bldg., $1,000,000; home economics bldg. addn., $800,000; library addn., $800,000; greenhouse, $350,000; animal husbandry bldg. $1,000,000; geology bldg., $1,000,000; television station, $300,000; utility imprvs., $300,000. CD 10/3.

Va., Charlottesville—SCHOOLS—City School Bd., City Hall, $950,000 bond election Aug. 18, 2 elementary schools; Lane High School addn. and McGuffey and Clark Elementary School repairs. CD 6/16. Bond election date changed.

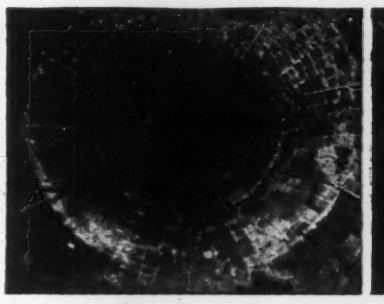
▲ N. B., St. John—HOSPITAL WING—General Hospital Bd., F. A. Thomas, purch. agt. Plans by Allward & Gillies, Canad. Per. Bldg., St. John, 280-bed, steel frame, brick hospital wing. $4,000,000. CD 12/12/52.

COMMERCIAL BUILDINGS

▲ Calif., Niles—HOUSING—Claude T. Lindsay, Inc., 2230 Turk St., San Francisco, 220-unit housing development between Morrison Ave. and Canyon Heights Dr. $2,000,000.

▲ Minn., St. Paul—STUDENT UNION—College of St. Catherine, 2004 Randolph Ave., plans by Ellerbe & Co., E. 505 First National Bank Bldg., 4 story student union bldg. $1,800,000. CD 3/22/46.

▲ Mo., St. Louis—MEDICAL OFFICE—Hanrose Investment Co., 40 N. Kingshighway, Zone 8, will not construct 25 story, bsmnt., brick, concrete, steel medical office, parking facilities on 4 levels, Kingshighway and West Pine Blvd., $5,500,000. Project abandoned due to zoning. Isador Shank, 8135 Forsyth Blvd., Clayton, Zone 24, archt. CD 7/8/52.



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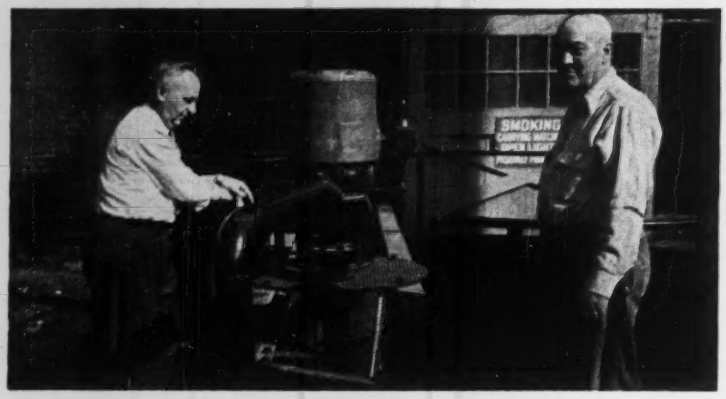

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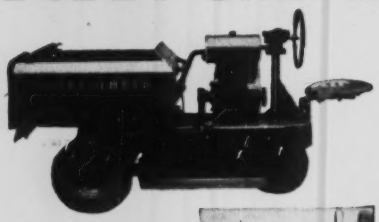

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▲ **N. Y., Armonk**—OFFICE, etc.—Ceno Corp., c/o City Investing Co., 25 Broad St., New York, Zone 4, project to contain office bldgs., scientific laboratories and similar structures on 432 acre tract at Rte. 22 and King St., North Castle, subject to re-zoning action.

▲ **N. Y., Brooklyn**—APARTMENT—Ocean Farragut Corp. 550 Flatbush Ave., Zone 25, plans by Schulman & Soloway, 100-15 Queens Blvd., Forest Hills, 6 story apartment, 1111-45 Ocean Ave. $1,000,000.

▲ **N. Y., Brooklyn**—COLLEGE—St. John's University, 75 Lewis Ave., Zone 6, plans by Henry V. Murphy, 1 Hanson Pl., Zone 17, 15 story college bldg. for Downtown Division Addn. $2,000,000.

▲ **N. Y., Hillcrest**—COLLEGE—St. John's University, 75 Lewis Ave., Brooklyn, Zone 6, plans by Henry V. Murphy, 1 Hanson Pl., Brooklyn, Zone 17, 17 year construction program incl.
Classroom bldg., $2,500,000;
Cafeteria and maintenance bldg., $3,500,000;
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Library, $3,000,000;
Chapel, $1,000,000;
Business administration bldg., $1,000,000;
University Administration Bldg., $500,000;
Gymnasium, $2,500,000;
Theatre, $500,000;
Convent, $300,000;
Stadium and athletic field, $1,000,000;
Graduate Studies Bldg., $1,000,000;
Law School, $1,000,000;
Outdoor Theatre, $150,000,
at Grand Central Parkway, 168 St., Union Turnpike and Utopia Parkway. CD 2/26/46.

▲ **N. Y., Rego Park**—APARTMENTS—Maple Glen Realty Corp., c/o Kavy & Kavovitt, archts., 44 Court St., Brooklyn Zone 2, 6 story apartment, 62 Rd. and Yellowstone Blvd. $1,584,000; 6 story apartment, 180 St. between 62 Dr. and 62 Rd., $1,152,000; 6 story apartment, Yellowstone Blvd. between 62 Rd. and 62 Ave., $1,080,000.

▲ **Pa., Chester**—Y.M.C.A. BLDG.—Young Men's Christian Assn., Seventh and Edgmont Sts., plans by Howell Lewis Shay, Packard Bldg., Phila., Y.M.C.A. bldg. $1,300,000.

▲ **Pa., Phila.**—HOTEL—Bellevue Stratford Hotel Co., Broad and Walnut Sts., plans by Thalheimer & Weitz, 325 Walnut St., hotel addn., alteration, renovizing, modernizing. $4,000,000.

▲ **Pa., Phila**—HOTEL—Sheraton Corp. of America, 1 Court St., Boston 8, Mass., hotel, 17 and 18 Sts., Market St. and Penn Blvd. "Penn Center". $14,000,000. CD 2/4.

Pa., Pittsburgh—CHURCH—Mt. Lebanon United Lutheran Church, Washington Rd., plans by Frank W. Ringel, 300 Mt. Lebanon Blvd., 1 story bmsnt., brick, stone church, 2 story bsmnt., Sunday school. Mt. Lebanon. $500,000.

▲ **Tex., San Antonio**—APARTMENT—HOTEL—Norman Lowery & Assoc., 218 Grotto St., plans by Norman Lowery, 218 Grotto St., 90-unit exclusive apartment-hotel in Shearer Hills. $1,215,000.

▲ **Va., Arlington**—MOTEL—Hot Shoppes, Inc., 1355 Lee Hy., 2 story, 400-unit masonry motel. $3,000,000.

Wash., Spokane—DORMITORY, etc.—Gonzaga University, E 502 Boone St., plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, dormitory and cafeteria. $800,000. CD 4/16.

▲ **Alaska, Fairbanks**—HOUSING—Cash Cole, Fairbanks, 200-unit multiple housing, $2,000,000.

▲ **Alaska, Fairbanks**—HOUSES—Kenneth Kadow, Fairbanks, 150 houses in Weeks field area, $1,500,000.

▲ **Que., Three Rivers**—HOSPITAL—Hospital de Ste. Marie, 12435 Ste. Croix St., Montreal, addnl. 100-bed Ste. Marie Hospital Annex, Blvd. du Carmel. $1,500,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Mountain View**—LABORATORY—Sylvania Electric Products, Inc., Whisman Rd. and Evelyn Ave., electronic research laboratory. $1,000,000.

▲ **Mich., Dearborn**—HEADQUARTERS—Ford Motor Co., 3000 Schaefer St., plans by Smith-Hinchman & Grylls, Inc., 800 Marquette Bldg., Detroit, 8 story Z-shaped, 340,000 sq. ft. headquarters bldg., Rouge Plant. CD 6/7/46.

Minn., St. Louis Park—WAREHOUSE—Reinhard Brothers Co., 11 S. Ninth St., Minneapolis, radio and TV sets warehouse, office. $700,000.

▲ **B. C., Vancouver**—MINING, SMELTING DEVELOPMENT—Western Nickel Co., 640 West Pender St., mining, smelting development and production facilities, 100-mi. east of here, $4,750,000.

UNCLASSIFIED

▲ **Ala., Montgomery**—STADIUM—City, Cramton Stadium addn. $1,250,000.

▲ **Ark., Fayetteville**—FIELD HOUSE—University of Arkansas, Fayetteville, plans by Haralson & Mott, Merchants National Bank Bldg., Ft. Smith, field house. $1,000,000. CD 1/18/49.

▲ **Colo., Denver**—PARK SYSTEM, etc.—City and Denver Co., City-County Bldg., defeated $2,000,000 bonds, June 16, imprv. public park sys. and recreational facilities. CD 6/12.

▲ **Que., Montreal**—PARK IMPRVS.—Municipality, City Hall, plans by Donat Beaubre, city archt., City Hall, community centre, incl. swimming pool, gymnasium, etc. $10,000,000; water distribution system, other imprvs., $2,000,000; grading, levelling, sodding, road paving, playgrounds, picnic grounds, Jarry Park, $500,000. E. Cormier, 3675 Cote des Neiges Rd., consult. engr. H. A. Gibeau, City Hall, city engr. CD 6/11/52.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS

July 13 Connecticut — July 14 Massachusetts

BUILDINGS

LOW BIDS AND CONTRACTS

John Capobianco, 44 School St., Boston, Mass. CA. $948,000. HOSPITAL addns., WORCESTER, MASS. Hahnemann Hospital, 281 Lincoln St., Worcester, Mass. CD 6/23, under LB.

▲ John Zandonella, 70 Chase St., Bridgeport, Conn. LB. $1,183,000, est. $1,800,000. Samuel Johnson Elementary SCHOOL Chopsey Hill Rd. north of Trumbull Rd., BRIDGEPORT, CONN. City, Bd. Educ., 804 Main St., Bridgeport, Conn. Bids June 24. CD 6/2.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

July 20 New Jersey — July 23 New York

STREETS AND ROADS

July 14 Maryland — July 21 New Jersey
July 23 New York — July 24 Pennsylvania

▲ New York—B.A. 7/23—At office Henry A. Cohen, dir. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, storm sewer interceptors and misc. work 1.25 mi. New York State Thruway Southern Westchester Connection Sub. 11 (N.Y. City Line-Tuckahoe Rd.). Cont. S.W.C. 53-1, Westchester Co. $1,183,000. Plans deposit $15; adv. ENR 7/9.

BIDS ASKED—BUILDINGS

▲ N. J., Englewood—HOSPITAL—B.A. 7/15—Englewood Hospital, Englewood, hospital addn., maternity bldg., new switch house. $2,000,000. CD 2/20/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ J. D. Hedin Constr. Co., 2900 Newton St. N.E., Wash., D. C. LB $1,846,000, Alt. add. $69,000. Incinerator Bldg. No. 3, West Virginia Ave. and Mt. Olivet Rd. N. E.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ John G. Hellman Co., 391 Fulton St., Brooklyn 1, N. Y. LB $1,295,304, Contr. 4, electrical work and lighting fixtures for constr. of Coney Island new General HOSPITAL Ocean Parkway, Avenue Z and 6 St., BROOKLYN, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids June 29. CD 6/18.

▲ Holiday Hill Homes, c/o Matern & York, archts., 90-04 161 St., Jamaica, N. Y. Owner Builds. $1,300,000. 63 HOUSES, on 32-acre tract, on Cold Spring Hills Rd. near Jericho Turnpike, COLD SPRING HILLS, N. Y.

▲ Allied Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $1,250,000. 103 HOUSES, 126 St. and 25 Ave., COLLEGE POINT, N. Y.

▲ Rural New Yorker, Inc., c/o B.H. & B. L. Whinston, archts., 465 Lexington Ave., New York 17, N. Y. Owner Builds. $1,000,000. 104 HOUSES on both sides Broadway and First Ave. between Illinois and Cypress Sts., MASSAPEQUA PARK, N. Y.

▲ Gotham Constr. Corp., 501 Fifth Ave., New York 17, N. Y., CA $1,229,000, modernization of South and East Bldgs. and bsmnt. laboratories at HOSPITAL, NEW YORK, N. Y. Montefiore Hospital, East Gun Hill Rd. and Bainbridge Ave., New York 67, N. Y. CD 4/2.

▲ North Woodmere Park Homes, c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $1,800,000. 70 HOUSES, Mill and Brookfield Rds., north of Peninsula Blvd., NORTH WOODMERE, N. Y.

▲ Cryder Holding Corp., c/o Kelly & Gruzen, archts., 80 Fifth Ave., New York 3, N. Y. Owner Builds. $1,800,000. 3 six story APARTMENTS, Powells Cove Blvd., east of 161 St., WHITESTONE, N. Y. CD 5/21.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 15 Louisiana

BIDS ASKED—BUILDINGS

Va., Leesburg—HIGH SCHOOL—B.A. 7/28—Loudoun Co. Bd. Educ., Leesburg, high school. $900,000. Eubank & Caldwell, Boxley Bldg., Roanoke, archts. CD 7/24/51.

▲† La., New Orleans—FOUNDRY—B.A. 8/4—U. S. Eng., P.O. Box 1229, Galveston, Tex., addn. to foundry bldg., cleaning bldg., equipment fdns., Michoud Ordnance Plant, Eng-41-243-53-80, Est. $1,000,000-$3,000,000.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Stobs Bros., 7010 N.E. 4th Ct., Miami, Fla., LB $1,483,813, Junior HIGH SCHOOL, MIAMI, FLA. Dade Co. Bd. P. Instruction, 275 N.W. 2nd St., Miami, Fla. Bids June 24.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 16 Indiana

BIDS ASKED—BUILDINGS

▲† Ill., Ipava—PLANT—B.A. 7/15—U. S. Atomic Energy Comn. P. O. Box 5400, Albuquerque, N. M., demolition, removal and disposal concrete bldg., slabs, brick masonry stacks and rough grading in an open area approx. 600 acres, Spoon River Plant, Inv. 292-53-25. Total cost, $20,000,000-$25,000,000. CD 6/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,
Herkner Constr. Co., 5450 Hamilton St., Cleveland, O. LB $5,261,336, Contr. C-16, one rein.-con. box culvert, west abutments of twin bridges over Cuyahoga River (the balance of which are being constructed under contr. (C-15) and five steel beam bridges from three to six spans each, supported on rein.-con. abutments and bents, the west abutments of the Cuyahoga River Bridge and abutments of four of the steel beam bridges to be on steel piles and abutments of the River Bridge and abutments of four of steel beam bridges to be on spread footings, Incl. grading, drainage, structures, paving approx. 4.9 mi. in Constr. Sect. 16 of Ohio Turnpike Proj. 1, from approx. 45 ft. northwest of the county line between Summit and Cuyahoga Counties at Turnpike Centerline Station 998 plus 00 in Cuyahoga Co.; extending eastwardly to point approx. 580 ft. west of River Rd. at Turnpike Center Line Station 256 plus 14 in Summit Co. constr. engineers office bldg. and facilities on or near the site of the work in Cuyahoga and Summit Counties. Bids June 30. CD 6/9.

▲ OHIO—Ohio Turnpike Comn., 139 E. Gay St., Columbus, Zone 15,
D. W. Winkelman Co., Inc., Heffernan Bldg., Syracuse, N. Y., LB $8,971,171, 10 mi. roadway Sects. C-2 and C-3, Mahoning Co. Bids June 30. CD 5/21 under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Connolly Constr. Co., Marysville, O., CA grading and excavation;
Sargents Concrete Products Co., Waverly, O., CA foundation digging. 115 HOUSING units adjacent to Waverly High School Rte. 335, on 106-acres, WAVERLY, O. Waverly Estates, Inc., 74 E. Gay St., Columbus, O. Est. $1,000,000. CD 5/12.

▲ Dahl-Stedman Co., 7 S. Dearborn St., Chicago 3, Ill., CA $2,000,000. Kresge CENTENNIAL HALL, EVANSTON, ILL. Northwestern University, 619 Clark St., Evanston, Ill. Bids June 12, awarded June 25. CD 5/28.

Robin Constr. Co., 1333 N. Wells St., Chicago 10, Ill., CA $923,850. 25 APARTMENT bldgs., 100 units and paving, ROBBINS, ILL. Cook County Housing Auth., 537 S. Dearborn St., Chicago 5, Ill. Bids Dec. 18, awarded June 24. CD 12/29, under LB.

▲ L. J. Graf Constr. Co., 154 E. Erie St., Chicago 11, Ill., CA. $1,000,000. NURSES HOME and SCHOOL of TECHNOLOGY at W. Washington St., WAUKEGAN, ILL. St. Therese Hospital, Waukegan, Ill. Gaul & Voosen, 228 E. Superior St., Chicago 11, Ill. archts. Awarded June 22.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

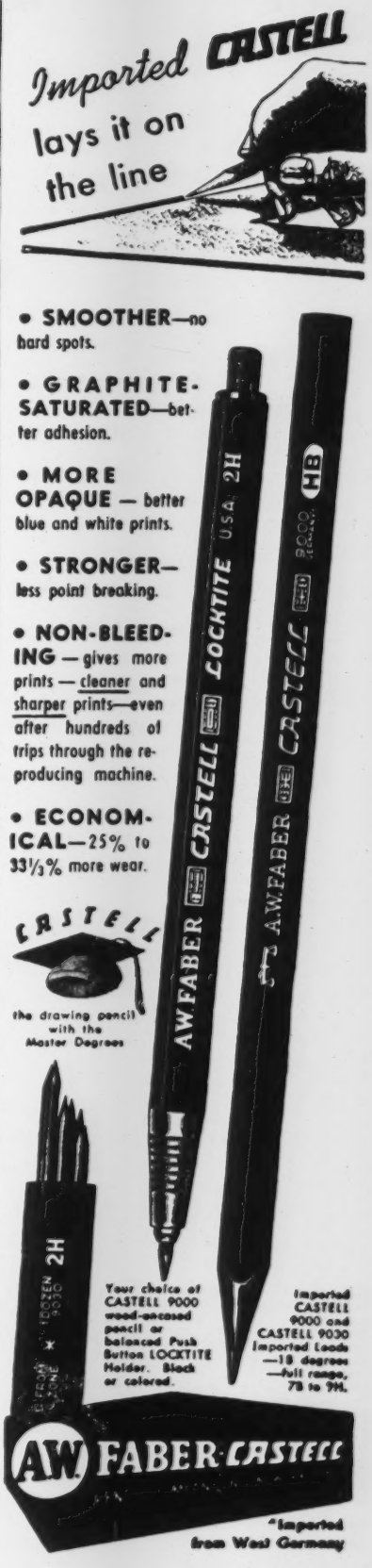
July 14 Iowa — July 21 Oklahoma

STREETS AND ROADS
July 14 Iowa, Kansas

BIDS ASKED—BUILDINGS

N. D., Minot—AUDITORIUM—B.A. 7/22—City, R. B. Riddle, clk., 176x225 ft. concrete block, face brick municipal auditorium. $768,000. Ellerbe & Co., E. 505 First Natl. Bank Bldg., St. Paul, Minn., archts. CD 1/17/47.

▲ Tex., Houston—HIGH SCHOOL—B.A. 7/23—Houston Independent School Dist., 1600 Washington St.,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lays it on the line
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2H
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On thousands of earthmoving jobs, Sauerman Scraper machines equipped with the unique Crescent bottomless bucket, are cutting costs in digging, hauling and dumping almost every kind of material.

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CRESCENT Scraper buckets are built in five types and fifteen sizes. Pictured above is a 1 cu. yd. size designed for heavy excavating.

SAUERMAN BROS., INC.

532 S. Clinton St. Chicago 7, Illinois

Garden Villa Junior High School. $1,700,000. Wyatt C. Hedrick, 5201 Fannin St., archt. Stayton Nunn, 3272 Westheimer St., co-ord. archt. CD 2/3.

Minn., Bloomington (P.O. Minneapolis)—SCHOOL—B.A. 7/30—Bd. Educ., E. B. Chadwick, clk., 10025 Penn Ave. S., Zone 20, grade school, France Ave. and 108 St. $800,000. Plans deposit $25. D. Corwin, E. 818 First National Bank Bldg., St. Paul, archt. CD 3/18.

▲ **Minn., Richfield (P.O. Minneapolis)**—SCHOOL—B.A. 8/27—Bd. Educ., E. C. Ellenson, clk., high school, 72 St. and Harriet Ave. $2,250,000. Extended date. Thorshov & Cerny, 400 Metropolitan Bldg., Minneapolis, archts. CD 6/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Southwest Welding & Mfg. Co.**, 1040 S. 10 St., Richmond, Calif., LB. $6,962,462. penstocks and surge tanks for Garrison Dam and Reservoir Proj., Riverdale, Inv. 32-015-53-54, NORTH DAKOTA. U. S. Eng., Fort Lincoln, P.O. Box 300, Bismarck, N. D. Bids June 17. CD 5/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Robert E. McKee, General Contractor, Inc.**, Box 562, El Paso, Tex., LB $2,637,000. ARTILLERY BLDGS., Fort Bliss Artillery School, Serial No. Eng-29-005-53-102, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids June 23. CD 6/11.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

July 22 California

STREETS AND ROADS

July 22, 23 California

▲ **Wash., Centralia**—B.A. 8/11—City, City Hall, furnishing, erecting 6,250 kva alternating current water wheel generator for $1,500,000 expansion of power plant. CD 9/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Morgan Electric Co. and Wismer & Becker**, 109 W. Harrison St., Seattle, Wash., LB $990,777, est. $881,579 installing equip. and completion of Albeni Falls powerhouse, Inv. 53-59, IDAHO. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 24. CD 6/17.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,

McCammon-Wunderlich Constr. Co., P.O. Box 1023, Palo Alto, Calif. CA. $985,452. grading, drainage 4.9 mi. between Forsyth Creek and Ridgewood Summit, Mendocino Co. Bids June 10, awarded June 23. CD 6/16. under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif. CA. $856,704. grade 1 mi. between 0.3 mi. and 1.3 mi. of San Francisco Co. line, San Mateo Co., awarded June 18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bennett-Campbell, Inc.**, Seaboard Bldg., Seattle 1, Wash., LB $1,549,274. 4 story addn. to Bon Marche Department STORE, SEATTLE, WASH. Allied Stores, Inc., 401 Fifth Ave., New York, N. Y. Bids June 25. CD 6/10.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Angus Robertson Ltd.**, 5035 Western Ave., Montreal, Que. CA Est. $1,000,000. Rehabilitation Parliament LIBRARY, OTTAWA, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. E. A. Gardner, c/o owner, archt. CD 8/13.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

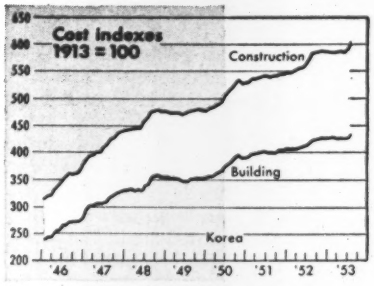
▲† **J. H. Pomeroy & Co., Inc.**, Republic Bldg., Seattle, 1, Wash., LB $2,629,836, est. $2,396,295, family HOUSING, other bldgs., utilities, Inv. 53-71, KENAI, ALASKA. U. S. Eng., Anchorage. Bids June 24. CD 6/12.

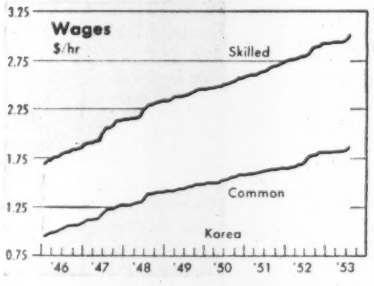
AMERICANS ABROAD

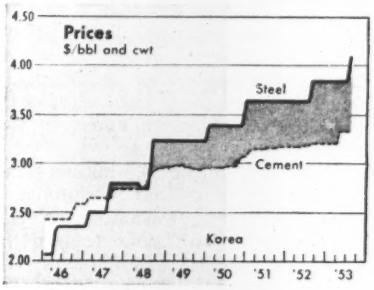
New South Wales—Plans will be available at the office of the Australian Consul General, 636 Fifth Ave., New York 20, N. Y. on July 10 for Contracts 2002 and 2003 Snowy Mountain Project. Contract 2002 incl. a 13.8 mi. 21 ft. diam. concrete tunnel, access tunnel, intake shaft and gates; Contract 2003 a 715 ft. long 290 ft. high arch dam, pressure tunnel and surge chamber. Plans will be available August 8 for Contract 2204, an underground power house. Snowy Mountain Hydro Electric Commission, Kooma, is owner.

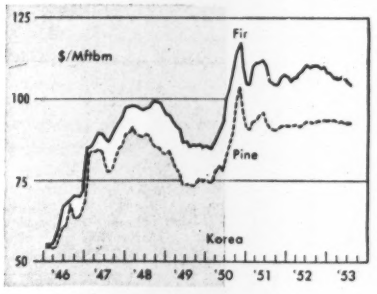
(Proposal Advertisements see pp. 90 to 93)

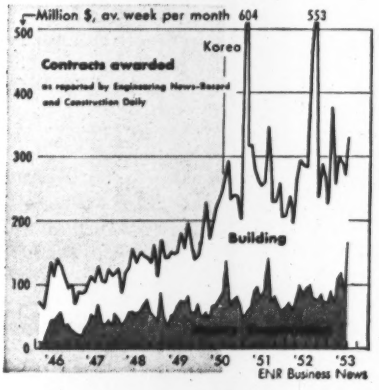
JULY CONSTRUCTION SCOREBOARD











ENR INDEXES (1913 = 100), 20-cities' average	1953 July	% Change from last Month	% Change from last Year
Construction Cost	604.10	+1.8*	+ 5.9
Building Cost	435.28	+2.1*	+ 5.0
WAGE RATES, 20-cities' average			
Common	$1.877	+1.3	+ 7.0
Skilled (aver. 3 trades)	3.021	+1.5*	+ 6.0
Bricklayers	3.319	+0.5	+ 5.3
Structural Ironworkers	2.966	+1.7	+ 6.1
Carpenters	2.770	+2.1*	+ 6.2
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.342	+0.1*	+ 4.0
Structural Steel, (3-mill aver.), per cwt	4.100	+6.5	+12.3
Sand, per ton	2.174	0.0	+ 3.3
Lumber, 2x4 Fir, per M. ft. bm	104.875	−0.3	− 4.2
Lumber, 2x4 Pine, per M. ft. bm	92.833	0.0	+ 0.5
Common brick, per M	32.679	+1.1	+ 3.4
Ready-mixed concrete, per c. y	11.863	+0.7	+ 7.2
Structural Clay Tile, 3x12x12 per M	158.711	+0.1	+ 4.9

* June figure revised.

CONTRACTS AWARDED (Millions)	1953 June	1953 6-Mos.	% Change from '52 June	% Change from '52 6-Mos.
Total U. S. (ENR reported)	$1,318.1	$7,971.7	+15.5	+17.5
Private	677.2	4,586.4	+19.0	+28.1
Public	640.9	3,385.3	+12.0	+ 5.6
Federal	164.9	807.0	−16.2	−24.2
ENR Volume Index, '13 = 100	572	556	+ 5.3	+10.0
NEW CAPITAL (Millions)				
Total	677.5	4,497.9	−35.1	+ 4.3
State & Municipal Bond Sales	335.7	2,281.0	−42.8	+15.0
Corporate Security Sales	334.5	2,158.7	−24.4	− 1.6
Federal (non-federal work)	7.3	58.2	−46.7	−56.6
Federal (federal work)	0.0	0.0	.....	.....

MATERIAL SHIPMENTS & LABOR SUPPLIES (Millions)	April (A) May (M)	4-Mos. (4) 5-Mos. (5)	% Change From Mo.	% Change From Yr.-Cum.
Cement bbls, Bu. of Mines	20.891(A)	69.379 (4)	− 4.0	+7.0
Fabr. Struc. Steel, tons AISC	.265(M)	1.286 (5)	+ 8.6	+4.1
Lumber, mil. ft. bm., NLMA	3.582(A)	12.915 (4)	+10.1	+7.0
Lumber Prod., mil. ft. bm., NLMA	3.516(A)	12.689 (4)	+ 9.9	+6.6
Contract Constr. Employ., BLS	2.480(M)	2.355†(5)	− 1.6	−1.0

† Average.

ENR INDEX REVIEW

	Construction Cost 1913 = 100	Construction Cost 1949 = 100	Building Cost 1913 = 100	Building Cost 1949 = 100	Volume 1913 = 100	Volume 1949 = 100
1952						
July	570.65	119.63	414.46	117.81	904	261
Aug	583.69	122.36	422.36	120.06	1082	313
Sept	586.08	122.86	424.40	120.64	441	127
Oct	588.43	123.27	424.77	120.70	540	156
Nov	588.61	123.39	426.04	121.10	504	146
Dec	587.49	123.16	424.92	120.79	421	122
1953						
Jan	587.27	123.11	425.04	120.82	714	206
Feb	587.19	123.09	425.24	120.88	480	139
Mar	587.44	123.15	424.89	120.78	547	158
Apr	589.53*	123.59*	426.45*	121.22*	523	151
May	589.03*	123.48*	426.29*	121.18*	499	144
June	593.17*	124.35*	426.27*	121.17*	572	165
July	604.10	126.64	435.07	123.67	...	...

* Revised.

June awards make new record: Federal work picks up a bit

Heavy-construction contract awards, as reported to ENGINEERING NEWS-RECORD and the Construction Daily, totaled $1,318 million in June. This is the highest volume for any June on record, and it pushes total awards for the first six months of this year to almost $8 billion. For the first half, awards are up 18% over the similar 1952 period, and 9% above the previous high in 1951.

Compared with June of last year, total awards this June were up almost 22%. This reversed the trend in May and June, when total contract awards dropped behind the corresponding months of the previous year.

The big news in these contracts is the pickup in federal awards (chart, opposite page). June awards totaled $165 million, far below last year of course but still the biggest month for federal work since January. The May total, for instance was $98 million. This suggests that the federal category may continue to pick up during the rest of the year.

Private construction, and state and municipal work, continued to pile up fast in June. State and municipal contracts totaled $476 million, another record for June and 27% more than the same 1952 month. Highway and bridge construction set the pace, while waterworks and sewerage were also strong.

• **Record**—Private construction awards totaled $677 million, 19% above last year. If figured on a weekly average basis, it surpasses the previous record volume in June 1951, which had five weeks.

Mass housing and unclassified construction were the strongest areas in private construction. Commercial building, which had been strong earlier in the year, dropped off. Industrial building continued its decline.

Housing contracts were $295 million, up 29% above the previous year, but slightly below May of this year. Pipeline construction was the most important factor in boosting unclassified construction awards to $204 million, biggest month so far this year for this category.

Commercial building dropped 55% below the May total, down to $68 million. But it was 20% higher than in June 1952. Industrial contracts totaled only $108 million—the lowest month since July 1950. For the first half, total industrial awards are 2% below last year, indicating a gradual tapering off in plans for capital investment. However, the first half total is still huge; nearly $1.5 billion.

Going back to federal awards during the first half, an analysis shows that the drop in awards (24% below last year) has left one big phase of federal work relatively untouched. The federal airport program has accounted for $292 million, 23% more than last year (see table, opposite page). The big increases have been in new runway construction, hangars, and buildings. Airport housing facilities have dropped far below last year.

Denver issue three-time loser

A concentrated campaign for approval of bond issues to finance improvements termed by Denver's Mayor Quigg Newton as "vital to the future of our city" went down in defeat for the third time in less than a year in a referendum recently. Signs placed in parks, on streets and viaducts where the improvements were to be made failed to draw more than one-fourth of the city's registered voters to the polls.

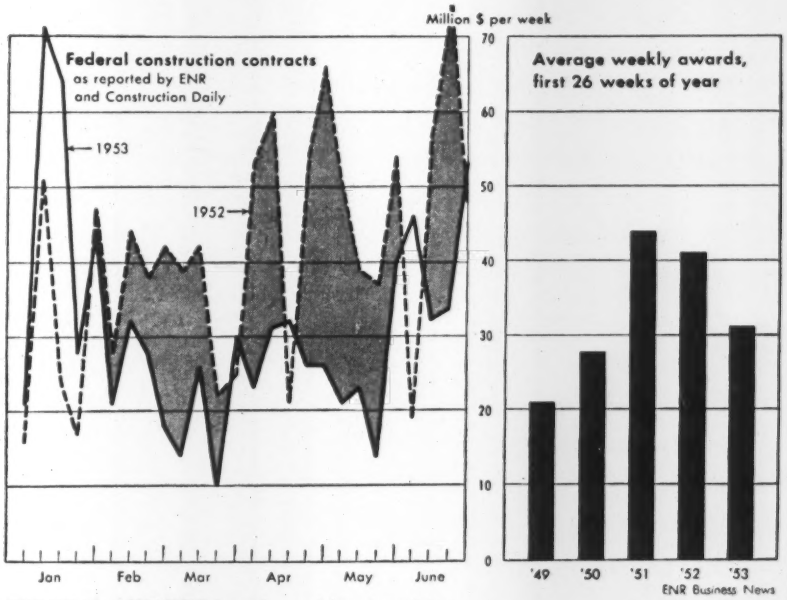
Proponents of the $4.3-million bond issues, contending that the proposals had been lost in the shuffle of last year's primary and general elections, urged the special election only to have the improvements rejected by five to three ratio.

ENGINEERING CONSTRUCTION CONTRACTS—JUNE 1953

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $34,000; *other public works,* $60,000; *industrial buildings,* $82,000; *other buildings,* $300,000

Four Weeks—Thousands of Dollars (000 Omitted)

	June, 1953							U. S. Cumulative Six Months		% Change	Canada June
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1953	1952	'52 to '53	1953
Public Works											
Waterworks	923	908	7,429	5,143	5,234	2,342	**21,979**	**126,837**	117,752	+ 8	1,231
Sewerage	2,570	2,471	3,881	4,865	7,160	3,659	**24,606**	**196,953**	128,179	+54	1,176
Bridges	1,171	38,238	4,854	9,199	4,714	1,668	**59,844**	**373,541**	181,617	+106	202
Earthwork and drainage	623	423	3,889	660	15,794	49,631	**71,020**	**215,843**	284,271	−24	1,978
Streets and roads	5,136	69,961	32,588	25,565	40,067	33,155	**206,472**	**888,552**	740,679	+20	11,688
Public buildings, residential	1,371	6,769	6,379	...	5,894	...	**20,413**	**267,913**	436,203	−39	2,982
Other public buildings	7,305	49,837	50,296	12,587	25,167	20,793	**165,985**	**879,305**	945,281	− 7	12,179
Unclassified	6,302	6,266	15,869	2,945	15,708	23,442	**70,532**	**436,329**	369,985	+18	3,195
Total public	**25,401**	**174,873**	**125,185**	**60,964**	**119,738**	**134,690**	**640,851**	**3,385,273**	**3,203,967**	**+ 6**	**33,661**
Federal government (included in above classifications)	6,539	6,363	39,127	2,474	30,785	79,649	**164,937**	**807,016**	1,065,220	−24	9,009
Private											
Bridges	...	1,500	...	...	...	...	**1,500**	7,052	12,520	−44	...
Industrial buildings	2,778	18,718	22,620	22,787	32,121	9,582	**108,606**	**1,463,943**	1,499,387	− 2	12,219
Mass housing	4,035	105,682	56,713	63,688	37,408	27,855	**295,381**	**2,039,324**	1,479,300	+38	8,154
Commercial buildings	2,980	14,765	19,732	14,449	12,089	3,970	**67,905**	**544,988**	316,838	+72	7,149
Unclassified	75	1,335	102,495	9,636	79,516	10,770	**203,827**	**531,118**	270,702	+96	4,478
Total private	**9,868**	**142,000**	**201,560**	**110,560**	**161,054**	**52,177**	**677,219**	**4,586,425**	**3,578,747**	**+28**	**32,000**
Total Engineering Construction:											
June, 1953—4 weeks	**35,269**	**316,873**	**326,745**	**171,524**	**280,792**	**186,867**	**1,318,070**	...	...	...	**65,661**
May, 1953—4 weeks	69,225	250,447	228,099	233,276	216,706	86,042	**1,083,795**	...	...	...	124,638
June, 1952—4 weeks	55,871	222,023	219,602	173,195	341,170	126,883	**1,140,654**	...	...	...	62,760
Six Months—1953	**357,334**	**1,740,205**	**1,493,111**	**1,776,800**	**1,656,258**	**947,990**	...	**7,971,698**	...	**+18**	**539,362**
Six Months—1952	308,084	1,278,308	1,463,780	1,047,238	1,869,316	815,088	...	...	6,782,714	...	617,689
% Change '52 to '53	+16	+36	+2	+70	−11	+16	...	...	...	...	−13



FEDERAL AWARDS have been rising since May.

FEDERAL CONSTRUCTION CONTRACTS—FIRST 6 MONTHS

AS REPORTED BY ENR AND CONSTRUCTION DAILY

	1953	1952	% chg
	(In millions)		
Total	**$807.0**	**$1,065.2**	**−24**
Airports	291.7	237.0	+23
Airports, air bases	58.7	35.7	+64
Hangars, buildings	158.0	102.9	+54
Housing	19.9	49.0	−59
Facilities	55.1	49.4	+12
Buildings, excl. housing	220.8	380.9	−42
Housing	26.7	84.0	−68
Other	267.8	363.3	−26

Steel and wage boosts push up cost indexes

The boost in steel prices, plus new wage contracts, pushed ENGINEERING NEWS-RECORD's Construction Cost Index and Building Cost Index up substantially this month.

The Construction Cost Index for July is 604.10, based on 1913 as 100. This is a 1.8% rise above the June figure. During the first six months of this year, the index rose only 1%. The Building Cost Index is 435.07, also based on 1913. It is up 2.1% over June, compared with a rise of 0.4% during the first six months.

While steel prices and wage rates moved up, lumber prices showed some further signs of weakness. Three cities reported declines and only one city posted an increase in lumber. On cement, prices were up in Detroit, down in St. Louis.

The pattern of wage increases in June stayed pretty close to the 10-15-cents per hour pattern. Of 20 different increases for common and skilled labor unions reported, 14 were between 10 cents and 15 cents.

Common labor rates rose from 7.5 cents to 12.5 cents an hour in five cities.

Skilled rate increases ranged from 5 cents to 35 cents. Carpenter rates, up in six cities, showed increases ranging from 10 cents to 20 cents. Structural ironworkers showed the widest range—from 5 cents an hour in Detroit to 35 cents in Pittsburgh. Bricklayers' rates are higher in three cities this month, with the new increases falling between 7.5 cents to 10.5 cents per hour.

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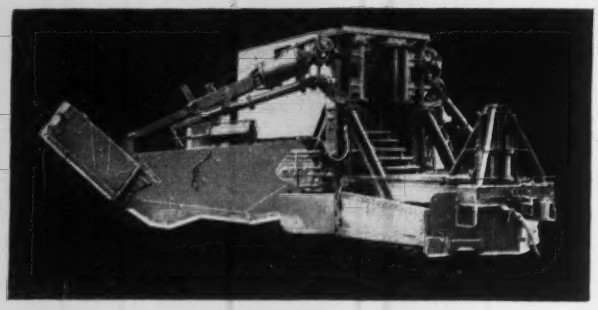

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Boost for builders

New housing law includes many ideas they pressed

Home builders finally won their point about giving the President standby authority to ease terms on FHA-insured mortgages. Furthermore, the Veterans Administration will no longer be able to restrict discounts on VA mortgages.

These were major items in a housing bill which President Eisenhower signed last week, only a few hours before some of the federal loan guarantee and insurance programs were due to expire.

The law gives the President the right to cut down payments on houses priced at $12,000 or less and financed with FHA mortgages. The present required down payment is 20%, and the maximum length of the mortgage is 25 years. The President could cut the down payment to 5% and increase the maximum length to 30 years. Lenders of course may require stiffer terms if they wish.

The new law also overrules an order by the Veterans Administration which had sharply limited discounting of VA mortgages (ENR June 11, p. 100). Home builders had argued—and Wall Street observers had agreed with them—that this order would cripple VA loans as long as interest rates were rising.

• **More insurance**—The law adds $1.5 billion to the mortgage insurance authorization of the Federal Housing Administration, which was necessary in order to keep FHA in the business of insuring mortgages. This brings total FHA authorizations to $14.7 billion. It also extends for a year the military housing insurance, defense housing and community facility programs.

Furthermore, the law allows the Federal National Mortgage Assn. to revolve $500 million of its portfolio under the so-called "one-for-one" plan. Builders who want advance mortgage commitments but are unable to get them through the usual mortgage banking channels would buy mortgages out of Fanny Mae's portfolio, getting in return a promise that Fanny Mae would buy at par within one year an equivalent amount of new mortgages. Any losses by the builder in reselling the mortgages purchased from Fanny Mae would constitute the cost to him of getting a firm advance commitment.

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between House and Senate members was a House provision requiring builders to give a one-year warranty that construction in substantial conformity with plans approved by VA or FHA in guaranteeing the mortgage. The conferees agreed that this was a good idea, but believed that so many technicalities were involved that it might slow down housing construction.

The new law also boosts to $5,700 the mortgage limit on low-cost homes in outlying or suburban areas. The previous ceiling had been $4,750. It also permits New York State to get an additional $35 million of federal grants for slum clearance and urban redevelopment, out of an unused portion of $500 million originally authorized for the purpose.

One-for-one plan

Fanny Mae is now working on its difficult price details

Though the Federal National Mortgage Assn. now has legal authority to go ahead with the "one-for-one" plan (page 86), it will still have to settle some very important details if the plan is going to work.

The first point is the price at which builders must buy mortgages from Fanny Mae, to get its commitment to take their own mortgages later on. Under the "one-for-one" plan, it's assumed that the builder can resell these Fanny Mae mortgages immediately in the open market. But the market value of the VA and FHA mortgages now in Fanny Mae's portfolio are way below par, because there has been a general advance in interest rates—including a boost in the rate on VA and FHA mortgages—since Fanny Mae bought them. So if builders are going to buy these old mortgages at all, the government agency will have to set a realistic price on them. In other words Fanny Mae will have to take a big loss, which could cause political fireworks.

Although final details will have to be worked out, Fanny Mae now expects to set a price about two percentage points (of par value) above the "national cross-section market price." In other words, since the discounts at which 4% VA and 4½% FHA mortgages are now selling vary in different parts of the country, Fanny Mae will quote an average price.

The two-point differential is Fanny Mae's charge for making the advance commitment. Of course, the cost to the builder will be higher if he had

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to sell this paper below the "national average price," which could easily happen. And this still isn't the whole cost he would have to pay.

One purpose of the one-for-one plan to liquidate Fanny Mae's huge portfolio gradually, without breaking the mortgage market. So the agency will commit itself to buy from the builder only a specified percentage of the dollar value of the mortgages which the builder takes over from FNMA at the start of the deal. Fanny Mae is now talking about a percentage of 80%. This would mean, for instance, that in order to get an advance commitment for $800,000 of mortgages the builder would have to buy $1 million worth of mortgages from Fanny Mae, and take a loss of approximately $20,000 in reselling them. So the cost of getting the $800,000 commitment would be 2½%.

The success of the whole plan depends in large part on what happens to the mortgage market. If more buyers appear in the market, which seems logical in view of the current easing in interest rates (ENR July 2, p 74), the market might be able to absorb Fanny Mae's mortgages without any trouble. So far, however, there are no signs that the stalemate in the mortgage market has broken.

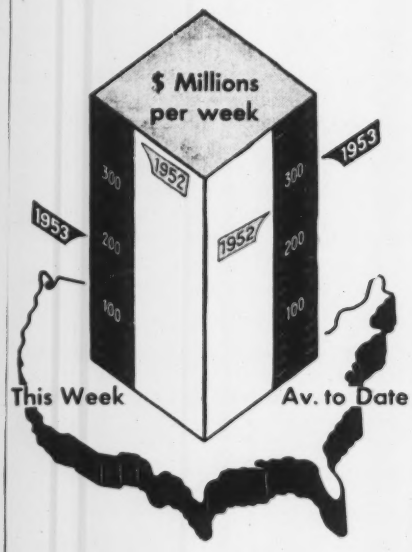
May collects $95,000 in copyright settlements

Cliff May, California home designer, has successfully enforced his copyrighted house design on Alcap Investment Corp., Fresno homebuilders. Last week May's attorney, William H. Nicholas, Los Angeles, reported that he had made an agreement with Alcap covering the payment of over $50,000 in licensing fees to his client. May had charged Alcap with following a prize-winning design of his in building 297 low-cost homes on the Brookside Homes tract near Fresno. Four model homes in this group are complete and 200 more have been sold from the plans.

Two months ago, May's lawyer settled litigation over construction of copyrighted May houses in Santa Clara County. May got $45,000 in fees for these infringements. Other suits are now pending.

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 28 wks 1953	1952	% chge
Federal	$45.4	$883.0	$1,240.2	−29
State and Municipal	86.7	2,755.0	2,308.1	+19
Total pub.	132.1	3,638.0	3,548.3	+3
Total priv.	59.5	4,781.5	3,839.3	+25
U. S. Total	**$191.6**	**$8,419.5**	**$7,387.6**	**+14**

Contracts by type of work

Waterworks	$1.3	$130.6	$130.4	0
Sewerage	5.8	207.9	142.5	+46
Bridges	6.4	404.6	214.4	+89
Highways	48.2	973.2	821.1	+19
Earthwork, Waterways	7.1	230.3	299.3	−23
Buildings:				
Public, excl. hsg.	35.3	943.1	1,071.9	−12
Housg., pub.	5.5	278.0	444.9	−38
Housg., priv.	29.0	2,139.8	1,633.0	+31
Commercial	12.0	583.0	338.4	+72
Industrial	12.6	1,502.9	1,581.3	−5
Unclassified	28.4	1,026.1	710.4	+44
Total	**$191.6**	**$8,419.5**	**$7,387.6**	**+14**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Years = 100 1953	1913	1926	1949
Construction cost	Jul	604.10	290.39	126.64	
	Jun	593.17*	285.14*	124.35*	
Building cost	Jul	435.28	235.19	123.73	
	Jun	426.27*	230.43*	121.17*	
Volume	Jun	572	233	165	

*Revised

Employee owners

A. D. Little Employees' Trust buys common stock control of company

The Employees' Trust of Arthur D. Little, Inc., industrial research concern of Cambridge, Mass., this week acquired majority control of the common stock.

This type of ownership is very unusual in U. S. business.

Like many other companies, Arthur D. Little, Inc., has an employees' profit-sharing retirement trust, to which each year the company contributes a fixed proportion of its earnings.

The trust has now bought for $1.3 million the common stock holdings of the late Arthur D. Little, from Massachusetts Institute of Technology.

After he died in 1935, Little's stock was placed in trust under the terms of his will for the benefit of MIT. Income from the stock was to be used to support educational and research activities.

MIT has accepted an offer from the Arthur D. Little Employees Trust, several times the original value of the stock, in order to diversify its investments.

Earl P. Stevenson, president of Arthur D. Little, Inc., says there will be no change in management or methods of operations, now that employees control the company.

Although admitting that this setup is very unusual, he says: "We feel it is particularly appropriate to our situation.

"Arthur D. Little, Inc., is a personal-service organization, which is composed largely of professional personnel.

"Since our success as an organization depends in part of the creativity of our staff, it is fitting that the staff should have a stake in the company's corporate success. We provided such a stake by establishing . . . the profit-sharing retirement trust. . . . By choosing to invest their funds in Arthur D. Little, Inc., itself, the trustees are creating an even closer bond between the staff and the company."

Arthur D. Little, Inc., which dates from 1886, today performs consulting research, engineering and related activities in nearly all fields of applied science.

It gets into such various fields as new product and process development, plant design, patent litigation, operations research, and industrial regional development.

INDUSTRIAL BUILDING CONTRACTS BY TYPE OF INDUSTRY
as reported by Engineering News-Record and Construction Daily

Industry	Dollar value First 6 months 1953	1952	% change '52-'53	Number of plants First 6 months 1953	1952	% change '52-'53
	(millions)					
All industry	$1,463.9	$1,499.4	−3	1,560	1,205	+29
Process industries	472.2	707.4	−33	277	270	+3
Public utilities	455.1	181.1	+151	61	58	+5
Metal ref., rolling	129.8	238.9	−46	18	26	−31
Machinery & parts	108.6	137.5	−21	240	215	+12
Food industries	89.0	31.2	+185	163	118	+38
Service, automotive	36.8	16.6	+21	133	69	+93
Textiles (excl. rayon)	18.1	8.8	+105	51	31	+65
Aircraft factories	17.1	47.3	−64	20	24	−17
Radio, TV, electronics	15.3	5.2	+196	17	6	+183
Railroads	11.3	13.1	−13	27	22	+23
Refrig. & cold storage	7.4	0.2	+3284	11	2	+450
Auto factories	6.6	46.6	−86	11	19	−42
Wood industries	4.2	3.3	+27	29	23	+26
Foundries	1.2	1.9	−38	8	7	+14
General	91.2	60.3	+51	494	315	+57

ENR industrial awards suggest peak in capital spending near

A close look at industrial building contract awards for the first half of this year, compared with the first six months of 1952, shows a slight reduction of 3% in total dollar volume. But it's interesting that the number of plants is up 29%.

Total awards in this category reported to ENGINEERING NEWS-RECORD and the CONSTRUCTION DAILY show a total of $1,464 million in contracts, and 1,560 new plants. (Table, above).

There are sharp drops in dollar volume of awards on such important groups as the process industries (which include the chemical, paper, and aluminum industries) and in metal refining and rolling—which is mostly steel. Another major category, the machinery and parts industries, also took a sharp drop in dollar volume.

However, a 151% gain in contract awards by public utilities, plus gains in the food industries and smaller categories, went far to offset the cutbacks in these major industries. The capital expansion of the public utilities is scheduled to continue at top speed through 1956 (ENR June 11, p. 102).

Nearly all industries, however, were building more plants in the first half of this year and then in the same period last year. The only exceptions were the metal refining, aircraft manufacturing, and auto manufacturing groups, where plants tend to be very large.

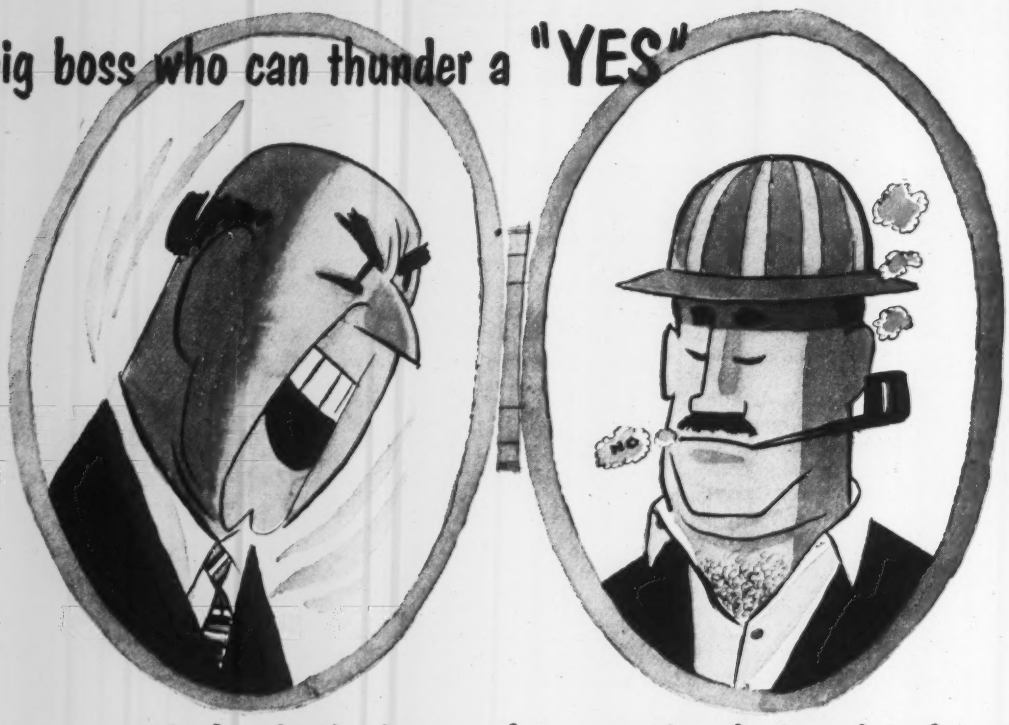
It's interesting to compare these figures with recent estimates by the Securities & Exchange Commission that total capital outlays by U.S. business would continue to rise through the third quarter of this year to all-time highs. Of course, SEC is talking about actual capital outlays; ENR is measuring contract awards. But contract awards clearly show future intentions on capital expenditures.

1953 highway budget will be biggest yet

Total expenditures for highways are estimated at a round $5,453 million this year, as compared with $5,014 million in 1952 and $4,541 million in 1951.

That's the word from the Bureau of Public Roads, which figures that in the past three years there has been a steady increase in the percentage of total highway expenditures used for capital outlay. It estimates the capital outlay ratio has climbed steadily from 56.1 in 1951 to 58.1 last year, and 59.5 this year.

the big boss who can thunder a "YES"



and the little boss who quietly shakes his head "NO"

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Bids: July 23, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time which is nine-thirty o'clock A.M., eastern standard time, on the 23rd day of July 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York				
Albany	R.C. 53-91	Shakers-Watervliet, S.H. 879	2.68	Asp. Conc. Ty. 1A, Opt.	$6,000 Plans $10	$108,000
		DISTRICT No. 2				
		L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica, New York				
Oneida	FARC 53-85	Waterville-New Hartford Pt. 1, S.H. 8277; Project No. F-436(4)	5.70	Asp. Conc. Ty. 1A, Opt.	$16,000 Plans $10	290,000
Oneida	FASS 52-1 Completion	Steuben-Remsen (Co. Rd.) (Completion Contract); Project No. S-363(1)	3.99	Graded Gravel D.S.T.	$8,500 Plans $15	157,000
		DISTRICT No. 3				
		WILLIAM ROBINSON, District Engineer, 301 E. Water Street, Syracuse, New York				
Cayuga	FARC 53-81	Moravia-Niles, S.H. 591; Groton-Locke-Moravia, S.H. 1016; Project No. S-424(1)	5.31	Asp. Conc. Ty. 1A, Opt.	$15,000 Plans $10	268,000
		DISTRICT No. 6				
		JAMES H. THOMAS, District Engineer, 30 West Main Street, Hornell, New York				
Allegany	FARC 53-78	Andover-Greenwood Pt. 1, S.H. 9044; Project No. S-416(1)	2.82	Asp. Conc. Ty. 1A, Opt.	$10,000 Plans $10	175,000
Steuben	FASS 53-7	Village of Canisteo-Depot St. (Co. Rd. 29); Project No. S-301(1)	0.19	Asp. Conc. Ty. 1A, Opt. 3 Sp. Comp. I-Beam Br. 187.5'	$15,000 Plans $10	277,000
		DISTRICT No. 7				
		R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, New York				
Franklin Jefferson Lewis St. Lawrence	R.C. 53-80	Br. No. 1, S.H. 985A; Br. No. 2, S.H. 8135; Br. No. 2, S.H. 428; Br. No. 4, S.H. 5332B; Br. No. 1, S.H. 5285; Br. No. 1, S. H. 8113; Br. No. 1, S.H. 1264; Br. No. 1, S.H. 1587;		Painting 8 Bridges	$1,100 Plans $10	21,000
St. Law.	FARC 53-79	Morristown-Hammond Pt. 2, S.H. 970A; Project No. F-650(3)	0.68	Asp. Conc. Ty. 1A, Opt.	$6,000 Plans $10	104,000
St. Law.	FARC 53-84	Seveys Corners-Colton Pt. 2, S.H. 8199; Project F-353(5)	4.40	Asp. Conc. Ty. 1A, Opt.	$13,000 Plans $15	244,000
		DISTRICT No. 8				
		J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, New York				
Columbia	FARC 53-92 FGRC 53-93	Grade Crossing Elimination of the N.Y.C.R.R. with Hollowville-Craryville, S.H. 763; Project Nos. FG-F-564(4)	0.95	Asp. Conc. Ty. 1A, Opt. R.R. Sep. Comp. Built-up Beam 180'	$40,000 Plans $15	735,000
Dutchess	FARC 53-59	Fishkill-Hughsonville, S.H. 551; Hughsonville, S.H. 222; Project No. S-419(1)	6.19	Asp Conc. Ty. 1A. Opt.	$23,000 Plans $10	375,000
Ulster	FARC 53-61	New Paltz-Rifton, S.H. 308; Project No. F-613(9)	3.02	Asp. Conc. Ty. 1A, Opt.	$12,000 Plans $10	223,000
Westchester	S.W.C. 53-1	New York State Thruway—Southern Westchester Connection Sub. 11 (N.Y. City Line-Tuckahoe Rd.)	1.25	Storm Water Interceptors & Misc. Work	$70,000 Plans $15	1,183,000
		DISTRICT No. 9				
		F. W. DONOVAN, District Engineer, 71 Frederick St., Binghamton, New York				
Chenango	FARC 53-86	North Norwich-Sherburne, S.H. 5121; Sherburne Village, S.H. 5391; Project No. F-456(5)	2.98	Asp. Conc. Ty. 1A, Opt.	$10,000 Plans $10	177,000
Sullivan	BWS 53-X	New York City—Board of Water Supply Road "X" Town Highway No. 69 (Neversink Reservoir)	1.05	Bit. Mac. Pen. Ty. 1	$8,000 Plans $10	134,000
		DISTRICT No. 10				
		M. E. GOUL, District Engineer, Montauk Highway, Babylon, L.I., New York				
Suffolk	FARC 53-87	Southampton-Bridgehampton, S.H. 1789; Bridgehampton-Devon, Pt. 1, S.H. 1495; Project No. F-559(8)	0.73	Asp. conc. Ty. 1A, Opt. = 0.69 Mi. Misc. Work = 0.04 Mi.	$10,000 Plans $10	180,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: July 23, 1953

The Port of New York Authority Two Fire Stations, Bus Terminal Roof Parking Area

PORT AUTHORITY BUS TERMINAL
CONTRACT O&M-182
PROPOSAL NO. 157

Sealed proposals for furnishing all labor, equipment and materials to erect two fire stations in the Roof Parking Area on the Port Authority Bus Terminal, 625-8th Ave., New York, will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) on Thursday, July 23, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

Bids: August 4, 1953

Construction of a Standpipe

Notice is hereby given that sealed bids will be received August 4, 1953 at 8 p. m., Daylight Saving Time by the Commissioners of the City of Bordentown at the Commission Chamber, City Hall, Crosswicks Street, Bordentown, N. J. for the following:

A 34 foot standpipe having a capacity of approximately 800,000 gallons

Plans and specifications for this work are available at the office of J. Horace Eaton, City Engineer, 513 Farnsworth Avenue, Bordentown, N. J., upon payment of Twenty-five Dollars which will be refunded to those contractors bidding the project.

Bids shall be submitted on standard proposal forms and shall be enclosed in sealed envelopes and addressed to the Commissioners of the City of Bordentown, New Jersey.

Award of contract will be made, if at all, to the lowest responsible bidder on the proposed work.

Each bid will be accompanied by a certified check made payable to Elizabeth Mackinnon, Acting City Treasurer, for not less than ten (10) per cent of the amount of the bid.

Elizabeth L. Mackinnon
Acting Clerk

Bids: July 30 1953

Hilton Head Toll Bridge Authority Bluffton, S. C.

NOTICE TO BRIDGE ENGINEERS

Notice is hereby given that sealed bids will be received on July 30, 1953 at 3:00 P.M. EST by the Hilton Head Toll Bridge Authority, at the address shown below, for the following engineering services in connection with proposed bridges across Mackey Creek and the Intracoastal Waterway between Hilton Head Island and the mainland near Bluffton, S. C.:

(a) Engineering services necessary to make all surveys, and foundation investigations, to determine proper location and type of bridges to be constructed.

(b) Engineering services necessary in preparing application for permit to the Department of the Army for the bridges.

(c) Engineering services necessary to prepare complete detailed plans and specifications for the bridges.

(Note—The preparation of plans and specifications for the earth approaches and the supervision of construction of approaches and bridges will be performed by others.)

Bids must be submitted on official proposal forms prepared by the authority, copies of which form may be obtained at the address shown below. Bids must be based on a percentage of the cost of the bridge portion of the project. Lump Sum bids will not be accepted. The Authority reserves the right to reject any or all bids, and to make such award as it deems to be to its best interest.

John Sturgeon, Chairman
HILTON HEAD TOLL BRIDGE AUTHORITY
BLUFFTON, S. C.

OFFICIAL PROPOSALS

Bids: July 10 & August 8, 1953

SNOWY MOUNTAINS HYDRO-ELECTRIC AUTHORITY

Construction Work

AUSTRALIA

Tenders are invited for Schedule of Rates contracts for furnishing labour and materials and performing all work for the construction in New South Wales, Australia, of the following work:

CONTRACT NO. 20,002 EUCUMBENE-TUMUT TUNNEL AND APPURTENANT WORKS

These works include a concrete-lined tunnel 21 feet in diameter and 13.8 miles long and associated works including an access tunnel 4,000 feet long, an intake shaft 18 feet in diameter and 300 feet deep, two gate shafts, one 200 feet and the other 380 feet deep, and a concrete diversion dam about 100 feet high and 260 feet long at crest level.

CONTRACT NO. 20,003 TUMUT POND DAM AND T.1 PRESSURE TUNNEL

These works include a concrete arch dam about 290 feet high with a crest length of about 715 feet, a concrete-lined pressure tunnel 21 feet in diameter and 8,000 feet long and an underground surge chamber.

CONTRACT NO. 20,004 T.1 POWER STATION, PRESSURE SHAFTS AND TAIL-RACE TUNNEL

These works include an underground power station with a machine hall, 330 feet long by 55 feet wide by 110 feet high and an underground transformer hall, two steel-lined pressure shafts each 12 feet in diameter and 830 feet in depth, tail-race tunnel 4,000 feet long and an access tunnel 1,200 feet long. The power station will contain 4 hydraulic turbine and generator sets each of 80,000 kilowatts. The supply and installation of hydraulic turbines and generators with appurtenant electrical equipment is not part of this contract.

LOCATION

The works are situated in the Snowy Mountains in the south-eastern part of the State of New South Wales, Australia, at approximately longitude 148°30'E Latitude 36°S. The elevation of the works varies between 2,500 and 4,000 feet above sea level.

TENDER DOCUMENTS

Tender documents comprising Form of Tender, Conditions of Tendering, General conditions of Contract, Draft Form of Agreement, Schedule of Quantities and Rates, Specifications, and Drawings may be obtained by prospective Tenderers on application to:—

Chief Administrative Officer,
Snowy Mountains Hydro-electric Authority,
Box 32, P.O., COOMA, 4S, N.S.W., Australia.
or
Australian Consulate-General
636 Fifth Avenue,
New York 20, N. Y.

Tender documents for Contract No. 20,002, Eucumbene-Tumut Tunnel and Appurtenant Works and Contract No. 20,003 Tumut Pond Dam and T.1 Pressure Tunnel will be available on Friday, 10th July, 1953, and for Contract No. 20,004 T.1 Power Station, Pressure Shafts and Tail-race Tunnel on Saturday 8th August, 1953.

Tender documents will be provided at a charge of $25.00 per set.

PRELIMINARY DEPOSITS

A preliminary deposit of £A10,000 payable at Sydney, New South Wales, Australia, must be lodged with the tender for each contract.

INSPECTION OF SITE

Tenderers are required to inspect the site of the works and on arrival in Australia should communicate with the Authority's Office at Yurong Street, Sydney, or Head Office at Cooma, New South Wales.

GENERAL INFORMATION

For its own purposes the Authority has compiled certain information regarding wages and conditions of employment, the geology, hydrology and meteorology of the region and general information concerning local conditions. The information is not part of the Tender documents. This information will be made available to Tenderers on their inspecting the site on the express conditions that it is not binding on the Authority or the Tenderer and that the Authority is not held responsible for the matter contained therein.

TENDERER'S EXPERIENCE

Tenderers are required to submit with their tender evidence of their resources and ability to carry out the contract and details of their past achievements on works of a similar nature. The Authority expressly reserves the right to reject any tender where the facts as to the tenderers experience business and technical organizations and financial and other resources when compared to the works to be carried out justify such rejection.

ACCEPTANCE OF TENDER

The Authority shall not be bound to accept the lowest or any tender.

SUBMISSION OF TENDERS

Tenders for any or all of the contracts must be submitted in duplicate in accordance with the Conditions of Tendering, enclosed in sealed envelopes appropriately endorsed with the contract number and name of the work tendered for, and addressed to:

The Commissioner,
Snowy Mountains Hydro-electric Authority,
Box 32 P. O.,
COOMA, 4S, N.S.W.,
Australia.

The tenders must be lodged in the Tender Box at Head Office of the Authority at Cooma or be sent by prepaid post in time to be delivered in the ordinary course of mail by 12 noon on Monday, 30th November, 1953.

W. Hudson,
Commissioner.

OFFICIAL PROPOSALS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3993) will be received at Denver, Colorado, until August 18, 1953, for furnishing two oil pressure, cabinet-type gate shaft governors for speed regulation of two 8,500-hp, 240 rpm vertical shaft turbines for Chandler Power Plant, Yakima Project, Washington. Delivery is desired within 660 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3991) will be received at Goleta, California, until July 29, 1953, for furnishing labor and materials for earthwork, steel pipe lines, pumping plant and structures, Laterals 10 to 16, inclusive, Goleta Distribution System, Cachuma Project. Location: Santa Barbara County near Goleta, California. Principal items are: Excavation and backfill, 18,100 cu. yds.; reinforced concrete in structures, 125 cu. yds.; furnishing and installing steel pipe, fittings, and accessories for laterals, lump sum; furnishing and installing pump units, lump sum; furnishing and installing various sizes single conductor; 600-volt insulated electric wire and cable, 750 lin. ft.; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Goleta, California; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3989) will be received at Tracy, California, until 10 a.m., pst, July 30, 1953, for furnishing labor and materials for earthwork, pipelines and structures, including pumping plants, Laterals 8.7 to 20.0, inclusive, and sublaterals, Plain View Water District, Delta-Mendota Canal Distribution System, Central Valley Project, California. Location: Vicinity of Tracy, California. Principal items are: 38,000 cu. yds. excavation and backfill; furnishing and laying 51,000 lin. ft. precast concrete pipe; and other work. The work is divided into three schedules. Completion time 300 days. For particulars, address Bureau of Reclamation, Tracy, California; or Building 53, Denver Federal Center, Denver Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

Read the Official

Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: July 14, 1953

Shavertown Bridge Superstructure Contract 435

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, July 14, 1953, for Contract 435, for the construction of the superstructure of the Shavertown bridge on the piers and abutments now being built under Contract 415, in the Town of Andes, Delaware county, New York, all as set forth in the specifications. The superstructure will consist of five spans of structural steel girders, the three middle spans each being 225 feet long, and each end span 150 feet in length, consisting of a cantilever 37 feet 6 inches and a suspended span 112 feet 6 inches in length. The deck of the bridge will be of reinforced concrete masonry with a roadway 28 feet in width and a sidewalk and steel railing at each side.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of forty-five thousand dollars ($45,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc. can be obtained in Room 1316, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: July 20, 1953

Trunk Sanitary Sewer for the City of Lancaster Lancaster, Pennsylvania

Sealed proposals will be received by the City of Lancaster at the office of the City Controller in the Municipal Building, Lancaster, Pennsylvania until 10:00 A.M., Eastern Daylight Saving Time, July 20, 1953, at which place and hour they will be publicly opened and read. Proposals shall include the furnishing of all necessary labor, materials and equipment, and performing all work for the construction of a Trunk Sanitary Sewer approximately 9500 feet long.

Each proposal shall be accompanied by a certified check or a bid bond in an amount of not less than (10 per cent of the bid total.

Copies of the Contract Documents, including Drawings and Specifications will be on file for inspection purposes only at the office of the City Engineer, Municipal Building, Lancaster, Pennsylvania; they may also be seen at the office of Gannett Fleming Corddry & Carpenter, Inc., Engineers, 600 North Second Street, Harrisburg, Pennsylvania, from whom they may be obtained, upon deposit of Twenty Dollars ($20.00) for each set. Full refund will be made to actual bidders only for return of one set in good condition within ten (10) days after closing date for receipt of bids; refund for return of all other sets, in good condition, within the same period, will be fifty (50) per cent of deposit.

City of Lancaster
Lancaster,
Pennsylvania

Gannett Fleming Corddry &
Carpenter, Inc., Engineers,
600 North Second Street
Harrisburg, Pennsylvania

READ THE OFFICIAL
PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 703S-315 for furnishing and delivering structural steel for Additions to Gering Substation, Transmission Division, Nebraska, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 2:00 p.m., Mountain Standard Time, July 14, 1953, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.75 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

The minute you seal the envelope you seal the verdict...

NO ONE but a bidder can decide, practically, whether he, or someone else, will be the successful bidder on any contract . . . because it is you — the bidder — who decide what you will charge to do the work. No one can decide that but you. So, you actually "write your own ticket."

NATURALLY, you must deliver certain specified materials and perform definite functions, within a certain time—that much of the job is something over which you have no control. But . . . it is when you begin to plan ways and means of DOING the job that you start to win or lose it. If you can do it more quickly, with less loss of motion, and, possibly, with fewer man-hours to charge against the job—in other words, at a lower cost to you — you will have the "edge" you need to make you the successful bidder.

LOW cost operation is usually the result of a thorough knowledge of the most efficient methods—and the use of modern equipment. You will be well repaid through your reading of ENGINEERING NEWS-RECORD—both editorial and advertising.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—EXPERIENCED miners for sewer tunnel, in clay type earth formation, at Charleston, West Virginia. Contact Nance & Vivadelli, 2420 Wilson Boulevard, Arlington, Virginia, Jackson 7-7749.

PLANT ENGINEER: Duties include preparation of master plan and zoning maps, preparation of plans and specifications for public works, and other related work under direction of the City Engineer. Qualifications: Degree in Civil Engineering from a recognized college or university or five (5) years experience in civil engineering or municipal work. Starting salary $300.00 per month. Applications must be received by July 31, 1953. Apply to City Engineer, City of South Milwaukee, Wisconsin.

PERMANENT POSITION with a progressive Western Ohio outfit available to a civil engineer, 30 to 40 years old. Position requires occasional travel. Experience in hydraulics desirable but not necessary. Applicants please give complete information including experience, current and past earnings, together with age, marital status, height, weight. Photograph optional. P-8289, Engineering News-Record.

IRRIGATION ENGINEER—For Manager of operating irrigation system. Arizona. Permanent position intended. Age 30-50 desired with background of irrigation construction and management. Salary open. Submit experience record, references and salary requirement first letter. P-8291, Engineering News-Record.

WANTED CONSTRUCTION Engineer and Estimator by General Contracting firm located in eastern West Virginia. Must have experience in estimating all types of construction, purchasing and expediting material. If interested, advise age, education, salary desired. This is an excellent opportunity. P-8312, Engineering News-Record.

PROJECT MANAGER—1½ hours from Washington. Good opportunity for competent Engineer with Contractor's experience, write full details. P-8313, Engineering News-Record.

RESIDENT ENGINEER and Engineer-Inspector of river intake, pump stations, water treatment plant, water mains, elevated storage tanks, and reservoirs—two (2) year program for the City of Logansport, Indiana. Construction to start about August 1, 1953. Submit applications and experience record with salary requirements to Mr. Robert Price, Supt. of Utilities, City Hall, Logansport, Indiana immediately.

HIGHWAY ENGINEER, not over 40, fast and accurate, for layout work, computing quantities, permanent employment. Salary $6,500. per year. P-8371, Engineering News-Record.

MECHANICAL DESIGNERS. New division of nationally-known, financially-sound company offers attractive permanent positions to several practical machine designers able to conceive, plan, detail, fabricate and follow-up special machinery to produce concrete pipe. Graduate mechanical engineers preferred but will consider others with suitable practical experience. These positions provide ample challenge, responsibility, freedom of action, and unusual growth possibilities to interest the type of man we want. P-8324, Engineering News-Record.

WANTED WATER Works and electrician. Skilled and experienced in Water Works Maintenance and qualified to repair all equipment and instruments found in a water works. Must have at least ten (10) years experience. Give details of training and experience, salary desired. P-8413, Engineering News-Record.

WANTED—CIVIL Engineer and Landscape Architect. Experience in paving and public works; also grading and drainage for an expanding firm of landscapes architects and engineers in New York, New Jersey area. Give resume of experience and salary requirements. P-8414, Engineering News-Record.

ELECTRIC SUPERINTENDENT. Small independent electric system needs superintendent of generation and distribution, preferably with engineering degree, to supervise 11,000 Kilowatt Steam Plant and urban overhead system. Write all details to J. G. Cree, Borough of Chambersburg, Pennsylvania.

CONSTRUCTION MEN! 2 men familiar with heavy construction work to train as foreman for interesting phase of foundation work. Capable of handling small installation crews on outside projects. Must be able to read simple blueprints. College degree and some mechanical ability desirable but not necessary. Must be willing to travel to various jobs for short periods, all expenses paid. Location Eastern seaboard. Excellent opportunity with long established firm. Vacation with pay. P-8392, Engineering News-Record.

(Continued on the following page)

EXPERIENCED STRUCTURAL STEEL DETAILERS AND CHECKERS

Permanent position with plenty of overtime; excellent working conditions in air conditioned drawing room. Paid holidays and vacation; liberal retirement pension benefits, life insurance. Give age, qualifications and phone number in first letter.

THE INGALLS IRON WORKS CO.
POST OFFICE BOX 2632
BIRMINGHAM, ALABAMA

JR. CIVIL ENGINEERS
FOR CALIFORNIA

Permanent positions in California's huge highway program. Wide choice of locations. High-grade professional experience. Open to CE graduates or to nongraduates with 2 years' experience. $376 to start, raise in six months.

STATE PERSONNEL BOARD
1015 L Street Sacramento 14, Calif.

ENGINEER

Drafting Checker — Mechanical or Civil Engineer with a minimum of five years experience in design and detailing preferably in the chemical industry. Position entails checking of structural and process designs.

Cost Estimating Engineer—Chemical Engineer with 6/10 years experience in Chemical Process equipment design including some cost estimating experience. Responsible position involving cost estimating and design of new chemical processes.

Apply Director of Personnel

J. T. BAKER CHEMICAL COMPANY
PHILLIPSBURG, N. J.

WANTED

Experienced concrete road Superintendent and also Foreman on road work. Permanent position for capable and dependent men. Location — Central New Jersey. Please give age, experience and references.

P-8276, Engineering News-Record
330 W. 42 St., New York 36, N.Y.

WANTED—An experienced
CONSTRUCTION SUPERINTENDENT
To supervise erection of a 50,000 KW, 1450 psi addition to a power station and also a construction accountant for this work. Estimated time for construction 12 to 18 months. Construction to start January, 1954.

P-8139, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DRAFTSMAN - CHIEF
Structural Steel Fabricating Shop

One capable of directing force of twenty men. Must be thoroughly experienced in modern shop methods. This company has been in business 30 years. Offices air conditioned. Steady work assured to right man.

THE MARYLAND STEEL PRODUCTS CO.
P. O. BOX 1997
BALTIMORE 3, MARYLAND

ESTIMATORS

Young engineers capable of mechanical estimating for construction of refineries, steam power and similar industrial projects. Must have some field experience.

Considerable weight given to ambition, intelligence and interest in estimating and cost analysis.

BECHTEL CORPORATION
220 Bush Street
San Francisco, California

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

SALES ENGINEER
Filters and related equipment

Chemical and General Industrial Fields in Northeastern Atlantic Coast States. Excellent opportunity with long established manufacturer. Reply giving full details.

SW-8119, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT
(Continued from preceding page)

CONTRACTOR'S ENGINEER—Field Superintendent by a medium-sized general contracting company doing heavy construction work. Located within suburbs New York City. Applicant must have previous experience with a general contractor taking off quantities, preparing estimates and supervising projects in field to completion. Maximum age forty years. Must assume administrative responsibility from bidding to completion of projects. In reply state age, experience, reference, education, salary expected and when available. P-8188, Engineering News-Record.

SALES MANAGER: Fine opportunity for right man with substantial company engaged in construction equipment field. To qualify must have experience in all branches of salesmanagement including initiating product improvement and new products programs, directing field sales organization, building sound distributor organization and some knowledge of advertising and market forecasting. Send full particulars covering experience, education, etc. to P-8358, Engineering News-Record.

OPPORTUNITY FOR an energetic engineer with sales personality, 25 to 35 years of age, for sales work with company Engineering and Rental Service, General Construction experience and some Engineering college training essential. Give full details in first letter to R. P. Wilkinson, Economy Forms Corporation, 4301 N.E. 14th St., Des Moines 13, Iowa.

CIVIL ENGINEER wanted as engineer in heavy construction contractor's field office. Should have about 3 to 5 years' experience and must be able to compute quantities, make simple layouts and generally assist project engineer. Permanent position with excellent chances for advancement as many of our executives worked up from this position. Location Western Maryland. Please state age, education, short experience outline and salary wanted. P-8337, Engineering News-Record.

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WANTED CONSTRUCTION Superintendent for work in Kansas, with experience in institutional and office buildings, industrial type buildings and government projects. Must be capable of taking complete charge of work. State starting salary, age and when available. P-8333, Engineering News-Record.

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GENERAL SUPERINTENDENT—Experienced in Industrial, Highway Bridge, Dam and Tunnel Construction. PW-8424, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Concrete pipe manufacturer, considerable experience. PW-8423, Engineering News-Record.

ENGINEER (Civil) Reg. P.E. 14 years experience in hydraulics, hydrology, flood control, airport drainage, administration. Desires permanent connection with consulting firm, public utility, or other agency. Now employed. Will relocate. PW-8422, Engineering News-Record.

CIVIL ENGINEER, A.M. ASCE, 34, married, BS Lehigh, MCE (Sanitary) NYU, LCOR CEC USNR, just released from active duty as Civil Works project manager. Registered P.E. & L.S. in New Jersey. Capable design project manager, especially sanitary and hydraulic. Good contract administrator. Experienced in design, investigations and reports, surveying, specification writing. PW-8382, Engineering News-Record.

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(Continued from opposite page)

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ENGINEER (CIVIL) Reg. P.E. 14 years experience in hydraulics, hydrology, flood control, airport drainage, administration. Desires permanent connection with consulting firm, public utility, or other agency. Now employed. Will relocate. PW-8422, Engineering News-Record.

GENERAL SUPERINTENDENT—Experienced in Industrial, Highway, Bridge, Dam and Tunnel Construction. PW-8424, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. Concrete pipe manufacturer, considerable experience. PW-8423, Engineering News-Record.

MECHANICAL ENGINEER desires foreign employment preferably in Europe or Latin America. Primarily interested in supervisory or administrative position. 15 years heavy experience in power, mining, construction and general engineering. Age 34, married, 1 child. Previous Latin American experience. Spanish speaking. Presently employed by large construction company. Available on short notice. Excellent references. Inquiries invited. PW-8366, Engineering News-Record.

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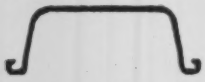

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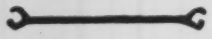

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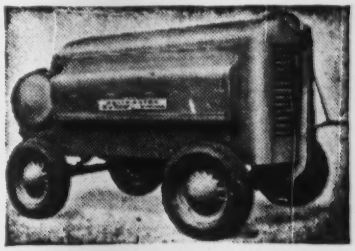

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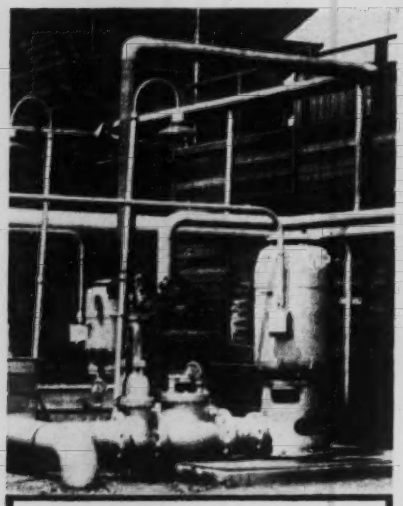
Critical Jobs are Routine for JOHNSTON PUMPS . . .



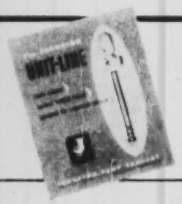
Take Cooling Towers *for example*

Three Johnston Pumps were selected for this cooling tower job by the firm which engineered and constructed this large oil refinery in Oklahoma, because . . .

Large savings were effected on installation costs. Higher efficiency meant lower operating costs. The flat horsepower curve of the Johnston vertical turbine pump allows operation against throttled discharge or reduced heads without overloading the driver. Vertical, hydraulically balanced design eliminates radial thrust and consequent bearing wear, thus cutting maintenance costs to the bone.

This is another typical example of the ability of Johnston equipment to handle all types of pumping jobs. Why not let our engineers consult with you on YOUR particular problem?

Send for your free copy of the new bulletin about Johnston close-coupled vertical turbine pumps. Ask for Bulletin L-73.



JOHNSTON VERTICAL PUMPS

JOHNSTON PUMP COMPANY
3272 East Foothill Blvd.
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NEW PRODUCTS

CHANNEL-SEAL provides air channels for the escape of air from roof sections where pressure builds up with rising temperatures.

Pressure build-up and blistering reduced with new roof insulation

Beveled edges provide channels for air movement under conditions of rising surface temperatures

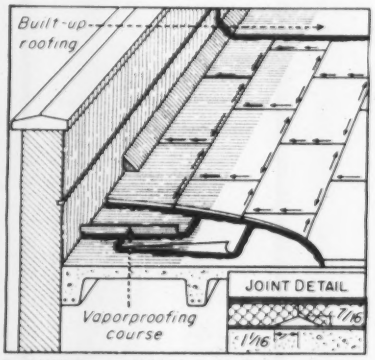
A new roof insulation panel incorporates subsurface channeling in an attempt to eliminate pressure build-ups and resultant blistering of roof areas. It is thought by the manufacturer that by passing air from areas where rising temperatures create rising air pressures, the channels help prevent separation of felt and insulation.

Celotex Channel-Seal roof insulation is a low density material composed of asphalted cane fiber (k factor of unasphalted cane fiber equals 0.33). Units are 24 x 48 in. and come in three laminated thicknesses—1, 1½ and 2 in. All thicknesses of panels have same bevel, 1⅛ x ⅛, on deck-side edges.

It is pointed out that density of the panels is held to a minimum to provide insulating efficiency, yet is high enough to preserve uniform thickness under job and maintenance traffic. Internal construction of the panels employs a criss-cross pattern of the fibers to prevent the board from pulling apart from rough treatment, edge impact or under normal wind pressure.

Waterproofing of the fibers in manufacture renders the board moisture-resistant throughout its thickness, but on all heated buildings where the average temperature of the coldest month is below 45°F and on all buildings in which excessive humidity conditions prevail, it is suggested that the insulation be underlain by a vapor-barrier.

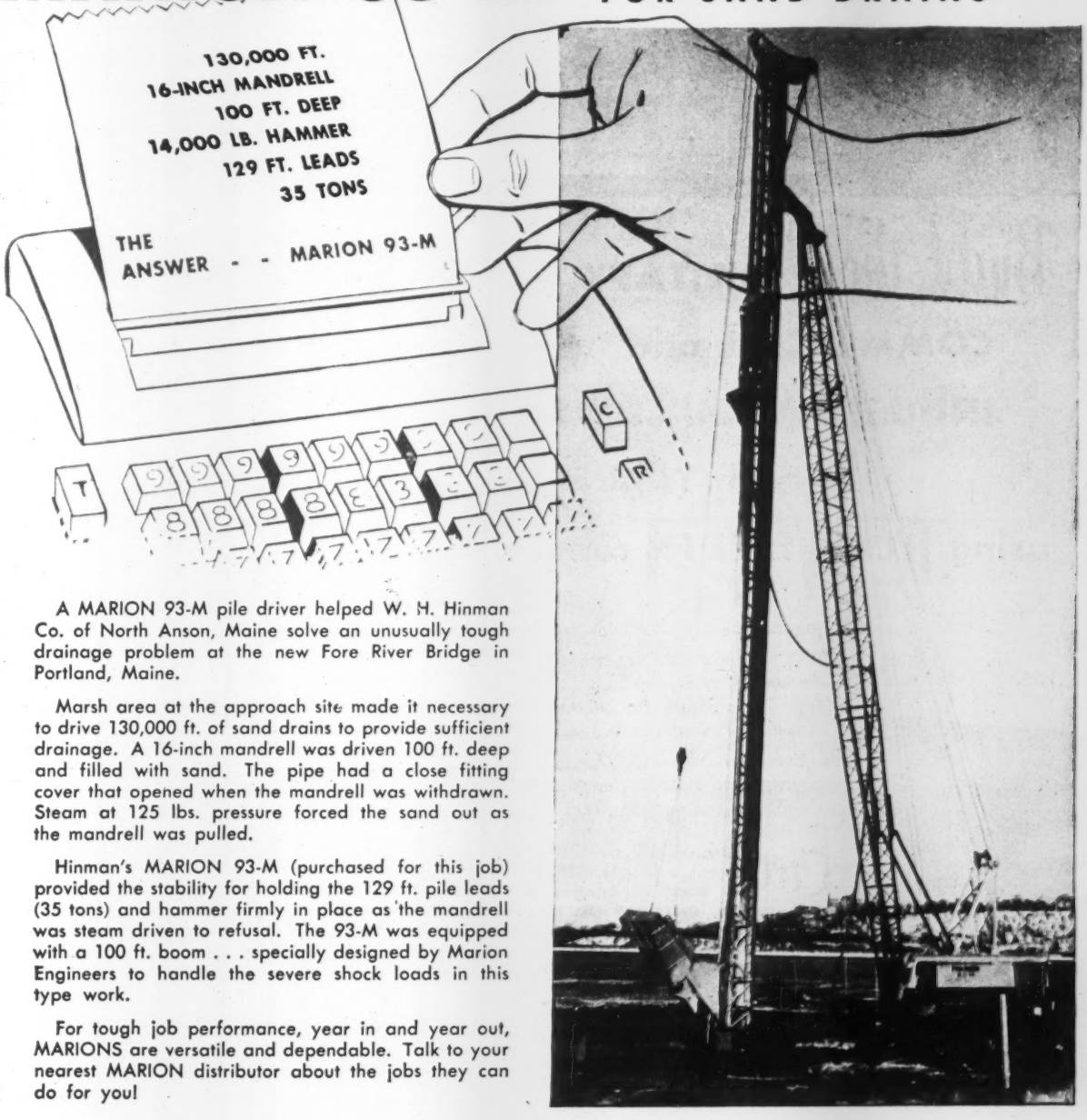
Furthermore, to achieve maximum insulating effects with the board it is advisable to use water cut-offs that will prevent the spread of water should it enter the insulating system. THE CELOTEX CORP., 120 S. LA SALLE ST., CHICAGO 3, ILL.



PANELS are laid in parallel courses.

The Right Answer for a Marsh Drainage Problem in Maine

MARION 93-M as a pile driver FOR SAND DRAINS



A MARION 93-M pile driver helped W. H. Hinman Co. of North Anson, Maine solve an unusually tough drainage problem at the new Fore River Bridge in Portland, Maine.

Marsh area at the approach site made it necessary to drive 130,000 ft. of sand drains to provide sufficient drainage. A 16-inch mandrell was driven 100 ft. deep and filled with sand. The pipe had a close fitting cover that opened when the mandrell was withdrawn. Steam at 125 lbs. pressure forced the sand out as the mandrell was pulled.

Hinman's MARION 93-M (purchased for this job) provided the stability for holding the 129 ft. pile leads (35 tons) and hammer firmly in place as the mandrell was steam driven to refusal. The 93-M was equipped with a 100 ft. boom . . . specially designed by Marion Engineers to handle the severe shock loads in this type work.

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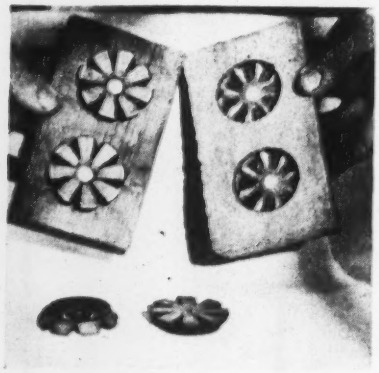


KIFS drop out for reuse.

Kifs leave spoked holes for lathless plastering

Little rubber disks two inches in dia and ⅜ in. thick are nailed to concrete form boards to make undercut niches in the hardened concrete when the boards are removed. The checkerboard of niched, "spoked" holes they produce becomes a multiple anchorage for plaster that squeezes into the undercut niches to produce a lathless, mechanical bond. Roughening is eliminated.

The disks are nailed to wooden forms with standard roofing nails or applied to steel forms with sheet metal screws. Spacing varies from four to ten in. on center two ways; for example, six in. o.c. two ways for most ceilings and eight in. o.c. for most walls. Flexible, the Kifs, as they are called, pull out of the hardened plaster without damaging the undercut edges and may be reused on other forms.

Nailing time is estimated at about 200 to 300 per hour and removing time is about 1,000 to 1,200 per hour. Special types are available for anchoring brickwork, marble, slate, etc. to concrete walls and spandrels. BUFFALO PRODUCTS, INC., P. O. Box 48, MURRAY HILL STA., N. Y. 16, N. Y.

Plaster and mortar mixer features telescopic axle

Wheels extended the full 40-in. axle length, the Rex six cu ft mixer can be towed at road speeds from job to job—wheels retracted the mixer fits through a 33-in. doorway.

Power for the mixer is supplied by a single-cylinder Wisconsin air-cooled engine and is transmitted through a gear reduction running in an oil-tight case to a chain-driven paddle shaft. Criss-cross mixing action is obtained by four paddles.

A bag cutter is conveniently located over the mixer drum. Drum tilts for

DRUM TILTS for fast discharge.

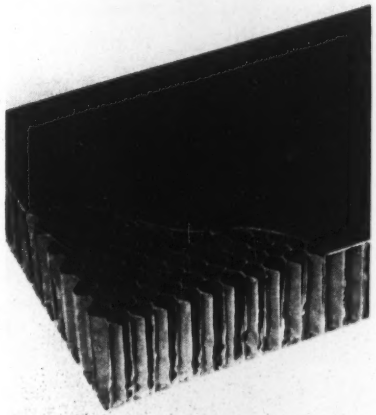
fast discharge into wheelbarrows or a mortar box. CHAIN BELT CO., 4701 GREENFIELD AVE., MILWAUKEE 1, WIS.

Rigid as steel, panel weighs 1/16 as much

Aircomb, a lightweight core material for sandwich structural paneling, developed for aircraft uses, is now being marketed for building construction purposes by the Douglas Aircraft Co.

A honeycomb structure of kraft paper impregnated with phenolic resin is sandwiched between thin facings of other more abrasion-resistant materials, such as aluminum, stainless steel, magnesium, wood, plywood, plastics, etc. Douglas reports that a panel faced with 0.016-in. aluminum has only 1/8 the weight of a steel panel with equivalent rigidity.

Not only is the material said to be strong but also to have definite thermal insulating properties as well.



HONEYCOMB gives rigidity.

(Continued on page 109)

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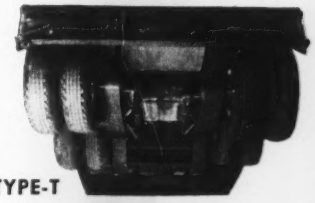
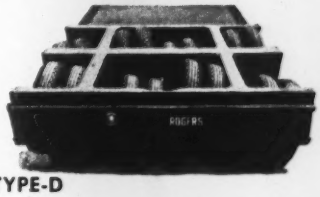


TYPE-T

TYPE-H



TYPE-D

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DETACHABLE GOOSENECK
TRAILERS

These trailers also embody the exclusive ability to drop the deck to clear low overhead obstructions or raise the deck to pass over humps in the roadway.

Of interest, too, is the fact that you can obtain this remarkable gooseneck in conjunction with any of the popular Rogers rear end units illustrated here.

This enables purchasers to meet special load requirements, to comply with their state road laws or simply satisfy their own preference, many of which have been established through years of satisfactory service with certain types of Rogers Trailers.

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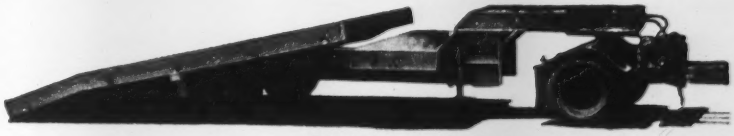

Divided bed, tilt deck trailer with gooseneck.

Export Office: 50 Church St., N. Y. 7, N. Y.—Cable address: Brositas

DIGGING — Contractor Del Balso of Bronx, N.Y., keeps his Model HM profitably busy. Here it's lowering grade for a new pavement . . . easily cutting the many tree roots encountered.

LOADING— Model HM doing a fast loading job on a dirt pile for Davis Construction Corp., Long Island. Fast reverse speeds and power boosted steering give this "PAYLOADER" high production on loading work.

BACKFILLING—A very popular "PAYLOADER" use is trench work — loading excess dirt and backfilling the trench. Tires do not injure pavements and the bucket can backfill over the top of sheeting or other obstructions.

SPREADING — On the Penn-Lincoln Parkway near Pittsburgh, Frank Mashuda's Model HM spreads shoulder material while concrete pouring goes on beside it. Good tire flotation and maneuverability is an important HM asset here.

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Big 4 wheel drive "PAYLOADER" tractor-shovels are capable *and* versatile — able to do *many* jobs and drive quickly from one job to another at speeds of 17 m.p.h. Big tires, plus 4-wheel-drive, gives them catlike traction and flotation to surmount poor ground conditions. Power boosted rear wheel steer makes them maneuverable and easy to handle . . . 4 gear ratios in each direction provide the right speeds to fit each task.

The powerful 1½ cu. yd. "PAYLOADER" is the flagship of the "PAYLOADER" fleet, which includes 7 sizes down to 12 cu. ft. bucket capacity. Also a choice of 4 wheel drive, rear wheel drive and front wheel drive to best fit your needs. Your Hough Distributor, one of 200 in the U.S. and Canada, is ready to serve you *right* — with extensive application experience and complete parts and service facilities. The Frank G. Hough Co., 772 Sunnyside Ave., Libertyville, Ill.

WRITE for full information on any of the "PAYLOADER" models: Four Wheel Drive HM — 1½ yd. and HR — 1 yd.; Rear Wheel Drive Models HY — 1¼ yd., HF — ¾ yd., HE — ½ yd.; Front wheel drive Models HAH — 15 cu. ft., HA — 12 cu. ft.

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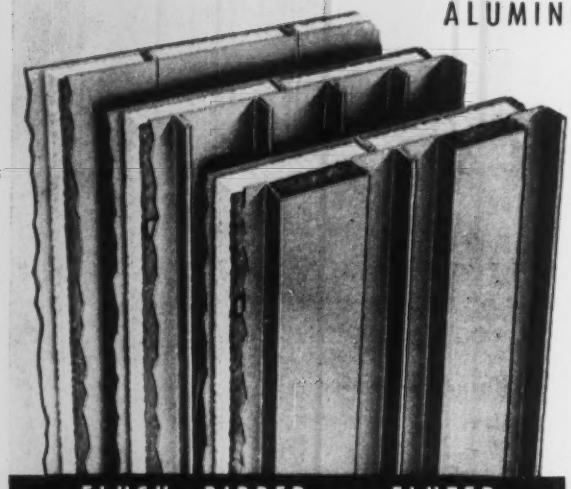

FLUSH, RIBBED, or FLUTED
Over-all "U" Factor of Various Types is Equivalent to or Better than Conventional 16" Masonry Wall

The trend to metal walls for new industrial and commercial buildings is evidenced day after day with more architects and designers turning to this modern, economical, timesaving, permanent type of exterior wall construction. The Lincoln-Mercury plant illustrated below is one of three complete plants built by one manufacturer employing aluminum exterior walls throughout . . . another manufacturer has employed Mahon Aluminum Insulated Walls on two completely new plants involving fourteen separate buildings. One Power Company has built three large steam powered generating plants employing Mahon Stainless Steel Walls on one, and Aluminum on the other two. Insulated Metal Walls offer definite advantages in lower cost of both materials and labor, reduction in construction time—plus the fact that these walls can be erected under weather conditions which would preclude masonry construction. Insulated Metal Walls also lend themselves to individual architectural expression in building design. Mahon Insulated Metal Walls are available in the three exterior patterns shown at left. The Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without horizontal joints—a feature of Mahon walls which is particularly desirable in powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for information or write for Catalog No. B-53-B.

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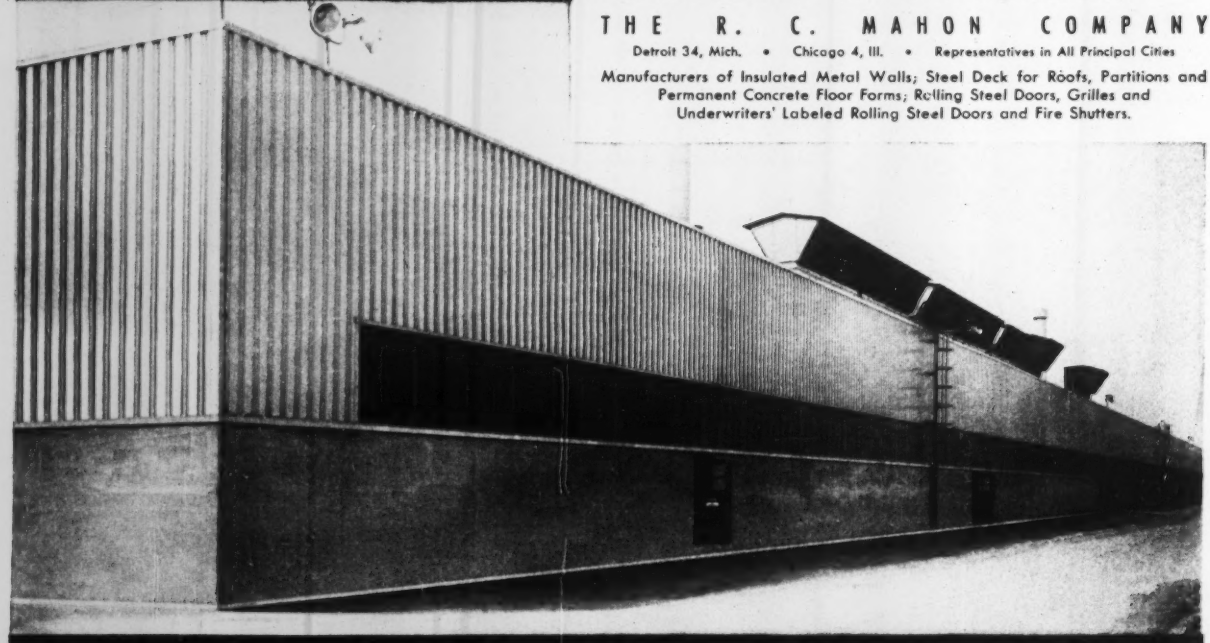

MAHON

For example, a 3-in. thick panel of Aircomb faced with 0.020-in. aluminum is claimed to have double the insulating value of an 8-in. brick wall or 12 in. of concrete.

The honeycomb core is said to be fire resistant, but because of the phenolic resin binder employed it is unlikely that the panels could withstand prolonged contact with temperatures higher than 350 F.

Design studies have been completed to adapt the material to partitions, doors, ceilings, flooring and other applications requiring high rigidity and low weight.

Price-wise the material is said to be in a good competitive position with conventional materials. DOUGLAS AIRCRAFT CO., 3000 OCEAN PARK BLVD., SANTA MONICA, CALIF.

Cement additive speeds setting time

A liquid chemical additive is now available that is said to make a fast-acting leak stopper out of ordinary cement. The material, called Flextite, regulates the setting time of portland cement, making it possible to stop direct leaks without removing hydrostatic pressure.

Mortar containing the additive is reported to be equally effective as a water resistant plaster coat that seals off seepage and excludes moisture. Likewise the material can be used for pointing up spalled areas or reforming exposed reinforcing bars or beams. FLEXROCK CO., 3649 FILBERT ST., PHILADELPHIA 1, PA.

Trencher sports new 4-speed transmission

A new 4-speed motor transmission has been developed for the Cleveland 92 Baby Digger. The new unit doubles the number of digging wheel and traction speeds previously available in the 92, and therefore provides for a more evenly graduated progression of usable speed combinations.

For each of the new transmission's four wheel speeds there are 12 crawler speeds. The 48 speed combinations thus developed provide 30 or more usable digging speed combinations ranging from .45 to 34.6 fpm.

The transmission is completely contained in a welded steel oil-tight housing and is equipped with anti-friction bearings. Alloy steel gears are machine cut, case-hardened and heat treated. CLEVELAND TRENCHER CO., 20100 ST. CLAIR AVE., CLEVELAND 17, OHIO.

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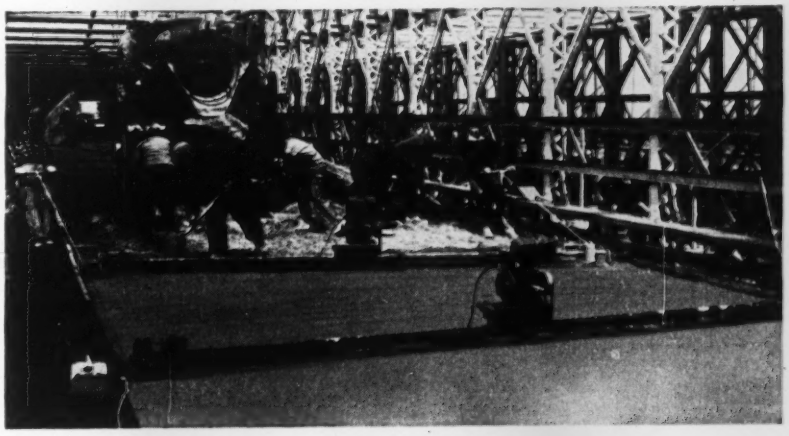

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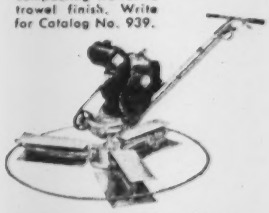

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Roofing and siding—Data and specifications for Careystone corrugated asbestos-cement roofing and siding are contained in a new 82-page manual. Included also are numerous drawings and photographs showing exact methods of application and erection. The manual is available at a price of 50¢ each from PHILIP CAREY MANUFACTURING COMPANY, CINCINNATI 15, OHIO, DEPT. CN.

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EDITORIALS

More atomic design data needed

AFTER THE YUCCA FLATS TESTS last spring, in which some frame houses were badly broken up by atomic blast, hopes were raised that this was merely the first step in a new program to provide engineers with more explicit design data on atomic resistance requirements. It seemed logical to expect that future tests would subject other types of structures to blast and heat effects. Also that a tendency to be more liberal in releasing hitherto secret data would be accelerated.

To date the hopes have not been realized. Neither the Atomic Energy Commission nor the Federal Civil Defense Administration seems to have any plans to test any industrial buildings—a type toward which an enemy attack certainly would be directed, and a type that might well yield to improvement by knowledgeable design. Nor has the AEC or the Defense Department noticeably altered the policy of keeping secret the data already in the files.

FCDA got a new head shortly before the Yucca Flats test. Now a new chairman has been appointed for AEC. They have decisions on many awesome problems awaiting them. But again hope is expressed that they will not overlook the need of structural engineers for every scrap of significant information that can be provided them. Safer buildings can make a notable contribution to our overall atomic defense.

Job well done

ANNOUNCEMENT that a new Deputy for Air Force Installations has been named by Undersecretary James H. Douglas of the Air Force (see p. 58) affords opportunity to accord deserved praise to John P. H. Perry who has borne the burdens of this installations office since it was established 18 months ago. Appointed on a completely non-political basis by Undersecretary Huggins of the previous Administration, Mr. Perry accepted the post as a patriotic duty. A retired vice-president of the Turner Construction Co., a former director of the American Society of Civil Engineers and a leader in construction industry affairs, a new job or additional prestige were not very high on Mr. Perry's list of ambitions. But he took the job because his intimate knowledge of the construction business and construction people was held up to him as an asset that his country needed.

It did not promise to be an easy job, and it did not prove to be so. The air bases in Morocco were under congressional fire. Those built in France were not progressing well. A scheme was afoot to build a large complex of bomber bases in Spain. And there were many other installation problems at home and around the world that needed attention.

With a determination that belied his age, Mr. Perry flew everywhere to see what was going on and then flew again, often on a few hours notice, to bring back information for policy decisions, which he presented with a characteristic forthrightness in speech that left no doubt as to his opinions. He bore the brunt of congressional questioning in the Moroccan case, giving one of the few fair appraisals of Air Force, Army Engineer, contractor and architect-engineer difficulties that emerged from that investigation. He was instrumental in conceiving and setting up the construction-management group of U.S. contractors to handle the French air base work, which was thereby put back on the road to accomplishment. He also spearheaded much of the planning for handling the Spanish air bases.

The fact that the agreement with Spain, which would bring this planning to a head, is still believed to be on the verge of signing, makes it somewhat regrettable that Mr. Perry's services are to be dispensed with quite so soon. Nevertheless, the new Secretary has a right to assistants of his own choosing, and in John M. Ferry, building engineer of the New York Telephone Co., he should have one of ability. Without doubt, both Secretary Douglas and Mr. Ferry, give full credit to Mr. Perry for a job well done. The point of this editorial is that the whole country should do likewise. And that the engineering and contracting fraternities should be proud of the service that one of their number has given in a thoroughly dedicated and unselfish way.

Around-the-clock roadbuilding

MOUNTING COSTS and a desire to minimize traffic delays are forcing highway engineers to resort to around-the-clock construction operations. Recently the Long Island State Park Commission carried out a major widening and repaving operation on the Northern State Parkway with a minimum of interference to traffic by paving at night as well as during the daytime hours of slack travel (ENR July 2, p. 30). A few days ago, Bertram D. Tallamy, head of the New York State Thruway Authority, announced that the authority plans to let a Thruway contract calling for three-shift operations to determine whether around-the-clock construction might speed the day when the Thruway can begin to earn a return on its enormous cost.

Dollars always have had a prominent place in the thinking of engineers. And, of course, night work has been common practice for many years on some types of construction, such as large dams, where it results in savings of a different sort. Judging by the enthusiasm of the engineers and contractors on the Northern State Parkway work, the Thruway Authority may find that night work has definite advantages, at least for some types of construction. If so, around-the-clock roadbuilding may become as commonplace as continuous placing of concrete in dams.

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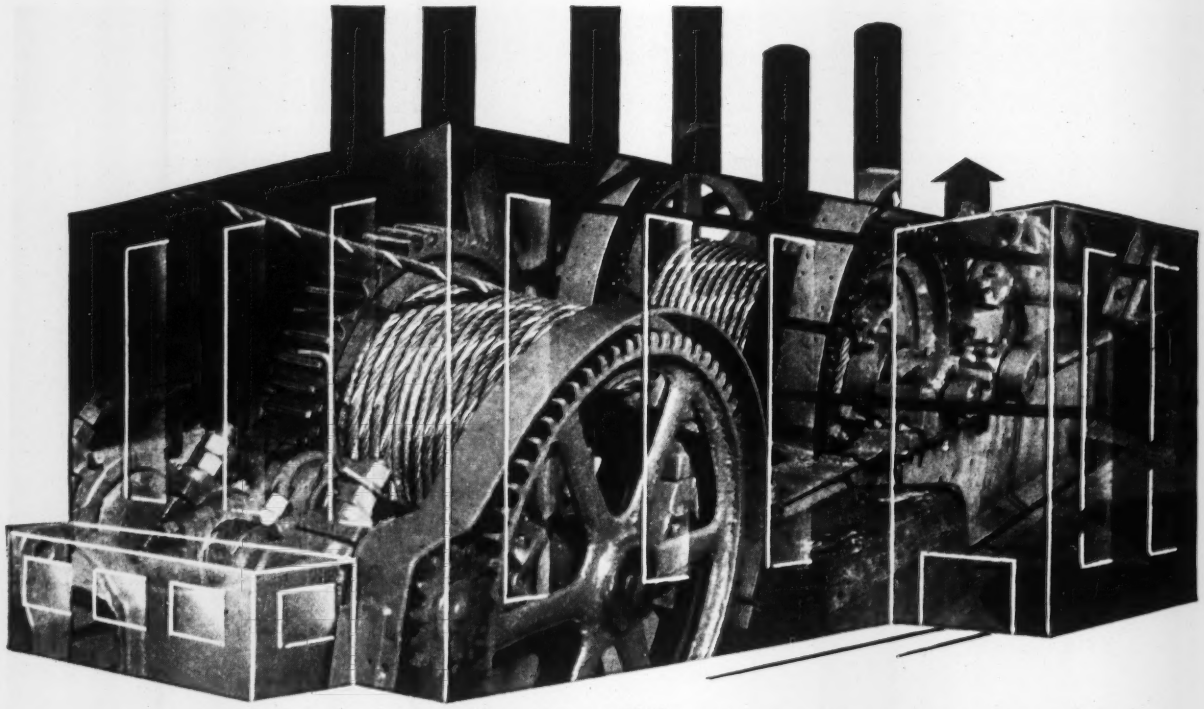

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